United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JANUARY AND FEBRUARY, 1905.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama Canebrake Station, Uniontown, J. M. Richeson, In Charge.

Experiments with Cotton, Corn, and Oats in 1904. By J. F. Duggar and J. M. Richeson. (Bulletin No. 22, pp. 32, fig. 1.)

Tests of varieties, methods of culture, and fertilizers on prairie soil of different kinds are reported.

Alabama College Station, Auburn, J. F. Duggar, Director.

Tests of Varieties of Cotton in 1904. By J. F. Duggar. (Bulletin No. 130, pp. 16.)

Brief accounts are given of tests of 39 varieties on reddish loam soil at the experiment station at Auburn and 20 varieties on gray prairie upland in Montgomery County, Ala.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 29.)

This includes brief reports of the treasurer and of the heads of the different departments of the station.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. VIII + 106, fig. 1.)

This includes a financial statement accompanied by Bulletins Nos. 77 to 82, issued by the station during the year.

California Station, Berkeley, E. W. Hilgard, Director.

Commercial Fertilizers. By G. Roberts. (Bulletin No. 162, pp. 22.)

The results of analyses of 80 samples of fertilizers, representing 54 brands, examined under the provisions of the State fertilizer law are reported, with various explanatory notes regarding the conduct of the inspection, the valuation of fertilizers, etc.

Pear Scab. By R. E. Smith. (Bulletin No. 163, pp. 18, figs. 9.)

The purpose of this bulletin is "to give the practical results of some observations upon the occurrence and treatment of pear scab (*Fusicladium pirinum*) in California, based upon the general practice in numerous orchards * * * together with some special work along this line which has been carried on by growers in various parts of the State in cooperation with this experiment station."

Twenty-second Annual Report, 1904. (Annual Report, 1904, pp. 228, figs. 23.)

This report contains a financial statement for the year ended June 30, 1904; a general report by the director; and reports on farmer's institutes, by E. J. Wickson; soils, by R. H. Loughridge; agricultural products, insecticides, and

waters, by G. E. Colby; dairy products, foods, and nutrition investigations, by M. E. Jaffa; viticulture, by E. H. Twight; agricultural technology, by G. W. Shaw; fertilizer control, by G. Roberts; economic botany, by H. M. Hall; plant pathology, by R. E. Smith; entomology, by C. W. Woodworth; animal industry, by E. W. Major; poultry experiment station, by A. R. Ward et al.; veterinary science and bacteriology, by A. R. Ward; irrigation, by S. Fortier; meteorological observations, by A. O. Leuschner; horticulture and field experiments, by E. J. Wickson and A. V. Stubenrauch; and culture work of the substations, by A. V. Stubenrauch. Lists are also given of donations of seeds, plants, etc.; papers and magazines received by the station; and publications of the station from 1877 to 1904.

COLORADO STATION, Fort Collins, L. G. Carpenter, Director.

The Plains of Colorado. By J. E. Payne. (Bulletins 87–90, pp. 33.)

This is a contribution to the studies of the Great Plains of Colorado which have been carried on for a number of years by the experiment station and includes notes on cattle raising, dairying, and wheat raising on the plains and the growth of alfalfa without irrigation upon the uplands.

Report of the Entomologist. (Bulletin No. 94, pp. 85, pls. 3.)

This report contains articles on Some of the More Important Insects of 1903 and An Annotated List of Colorado Orthoptera, by C. P. Gillette; Some New Colorado Orthoptera, by L. Bruner; and Bees of the Genus Nomada Found in Colorado, by T. D. A. Cockerell.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Commercial Feeding Stuffs. (Bulletin No. 147, pp. 55.)

Chemical analyses and microscopic examinations of 337 samples of commercial feeding stuffs are reported and discussed in this bulletin.

Ninth Report on Food Products. (Annual Report, 1904, Part II, pp. 198 + II, pl. 1, figs. 6.)

This is the ninth report on food products inspected under State law, and includes standards of purity for food products adopted by the Secretary of Agriculture and here made the standards for the State of Connecticut, and a report by A. L. Winton, E. M. Bailey, A. W. Ogden, and Kate G. Barber on the collection and examination (chemical and microscopical) of 316 samples of food products sold in Connecticut during 1904. A special report by A. L. Winton on the anatomy of the peanut with special reference to its microscopic identification in food products is also included.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

A Successful Brooder House. By F. H. Stoneburn. (Bulletin No. 33, pp. 10, figs. 7.)

The construction of a brooder house built in the fall of 1903 at the Connecticut Agricultural College is described.

Discussion of the Amount of Protein Required in the Ration for Dairy Cows. By C. L. Beach. (Bulletin No. 34, pp. 22.)

This is a critical review of data obtained in systematic observations made by the experiment station in the winters of 1892–93 to 1900–1901 on 40 dairy farms in Connecticut, and reported in previous publications of the station.

DELAWARE STATION, Newark, A. T. Neale, Director.

Soil Bacteria and Nitrogen Assimilation. By F. D. Chester. (Bulletin No. 66, pp. 24.)

The literature of the subject is briefly reviewed and studies by the author on nitrogen assimilating bacteria of the soil are reported with a brief discussion of the practical aspects of the subject, an appendix giving technical descriptions

of the organisms referred to in the bulletin, and a short bibliography of the subject.

FLORIDA STATION, Lake City, Andrew Sledd, Director.

Potato Diseases. By H. H. Hume. (Bulletin No. 75, pp. 179–198, figs. 7.)

This bulletin deals with the characteristics and methods of control of the following diseases which have been found to be injurious to potatoes in Florida: Late blight (*Phytophthora infestans*), early blight (*Alternaria solani*), bacterial blight (*Bacillus solanacearum*), Rhizoctonia blight (*Rhizoctonia* sp.), and scab (*Oospora scabies*). The results of experiments at Hastings, Fla., in treating seed with corrosive sublimate, formalin, and sulphate of copper for Rhizoctonia blight are reported.

Insecticides and Fungicides. By H. A. Gossard and H. H. Hume. (Bulletin No. 76, pp. 201–250, figs. 28.)

Practical methods of preparing and using insecticides and fungicides adapted to Florida conditions are described.

GEORGIA STATION, Experiment, R. J. Redding, Director.

Cattle Ticks and Texas Fever. By C. L. Willoughby. (Bulletin No. 64, pp. 145–182, figs. 9.)

This bulletin summarizes information relating to cattle ticks and Texas fever and describes immunizing experiments which have been made at the station and elsewhere in the State.

Corn Culture. By R. J. Redding. (Bulletin No. 65, pp. 185–197.)

A report of results of tests of varieties and of fertilizers in continuation of those of previous years, with suggestions regarding selection of varieties and seed corn, and fertilizer mixtures for corn.

Cotton Culture. By R. J. Redding. (Bulletin No. 66, pp. 201–233.)

This bulletin gives a summary of weather conditions during 1904 and reports results of tests of varieties, fertilizers, and methods of culture. General suggestions based on the experimental results are given regarding selection of seed and methods of cultivation and fertilizing.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 10.)

A brief summary of the work, receipts, and disbursements of the station during the year.

ILLINOIS STATION, Urbana, E. Davenport, Director.

The More Important Insect Injuries to Indian Corn. By S. A. Forbes. (Bulletin No. 95, pp. 330–399, pls. 5, figs. 38.)

This is a general introduction to the subject, with a discussion of insects injurious to the above-ground portion of the corn plant. The insects are illustrated in wood cuts and colored plates.

The Testing of Corn for Seed. By A. N. Hume. (Bulletin No. 96, pp. 399–416, figs. 8.)

The importance of carefully selecting and testing seed corn is explained and simple methods for this purpose are described.

Market Classes and Grades of Swine. By W. Dietrich. (Bulletin No. 97, pp. 417–463, figs. 41.)

For the assistance of farmers unfamiliar with market terms and usages an attempt is made in this bulletin to explain how swine are classified and graded on the markets of Chicago and other cities.

Clean Milk. By W. J. Fraser. (Circular No. 78, pp. 14, figs. 7.)

A brief popular discussion of this subject.

Present Methods of Beef Production. By H. W. Mumford and L. D. Hall. (Circular No. 79, pp. 10.)

A brief partial summary of data relating to methods now commonly pursued in beef production in Illinois compiled from 509 replies to a letter of inquiry sent to prominent cattle feeders in different parts of the State.

Power Spraying. By J. C. Blair. (Circular No. 80, folio.)

A brief notice regarding demonstrations of power spraying made at Centralia, Ill., July 29, 1904.

The Swine Industry from the Market Standpoint. By W. Dietrich. (Circular No. 83, pp. 8.)

An attempt is made in this circular to summarize information "which will help the farmer to a better realization of market conditions, and thereby put him in position more intelligently to produce and market his annual hog crop."

Records of Dairy Herds. By A. J. Glover. (Circular No. 84, pp. 38, figs. 21.)

This circular contains the second year's records of five of the eight herds, observations on which were reported in Bulletin 85 of the station, and of five of the ten herds reported on in Circular 77 of the station.

Practical Treatment for the San José Scale. By S. A. Forbes. (Circular No. 85, pp. 4.)

Brief practical directions are given.

Iowa Station, Ames, C. F. Curtiss, Director.

Report of the Iowa Educational Butter Contest. By G. L. McKay and C. Larsen. (Bulletin No. 80, pp. 305–334.)

An account is given of an educational butter contest begun by the dairy department at Ames in cooperation with the State Dairy Commissioner in 1903, and experiments to determine the maximum amount of salt which it is possible to work into butter of good quality are reported.

Kentucky Station, Lexington, M. A. Scovell, Director.

Insects Injurious to Cabbage. By H. Garman. (Bulletin No. 114, pp. 15–47, figs. 17.)

This bulletin calls attention to the possibility of poisoning from eating cabbage treated with insecticides, explains precautions to be observed to avoid danger from this source, reports a series of experiments with arsenites and other insecticides showing the extent to which these substances may be used without danger of poisoning, and describes and gives methods of treatment of the insects which have been found to attack cabbage in Kentucky.

On an Injury to Fruits by Insects and Birds. The Apple-tree Measuring Worm. The Fall Beauty, a New Apple. By H. Garman. (Bulletin No. 116, pp. 63–84, pls. 11, fig. 1.)

The cutting of the skins of ripening grapes, peaches, and plums by insects and birds, most commonly observed in the autumn, and especially destructive because accompanied by brown rot is described; notes on the apple-tree measuring worm (*Ennomos subsignaria*), which has been found to be injurious to orchards in western Kentucky in early spring, are recorded; and the Fall Beauty, a seedling apple originating in Hickman County, is described.

Maine Station, Orono, C. D. Woods, Director.

Apple Maggot and Other Insects. By Edith M. Patch and W. M. Munson. (Bulletin No. 109, pp. 169–184, pls. 3.)

This bulletin contains notes on the nature and treatment of the apple maggot (*Rhagoletis pomonella*) and on the insects sent to the station for identification in 1904.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Test of Different Spraying Materials for the Control of San José Scale. By T. B. Symons. (Bulletin No. 99, pp. 85–96, figs. 2.)

The results of a series of experiments conducted during the past year to test the relative value of different methods of preparing lime-sulphur-salt mixture, caustic soda and potash solutions, and various patented or proprietary insecticides, and of spraying at different seasons (late fall and early winter, early spring, and summer) are reported.

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Inspection of Concentrates. By J. B. Lindsey et al. (Bulletin No. 101, pp. 40.)

This bulletin gives a summary of the State feeding stuff law and discusses the duties of persons affected by the law; the analytical data and general results of the inspection; the average composition, digestibility, and market value of concentrated feeds; the cost of digestible protein; the mixing of grain rations; and the weight per quart of concentrated feeds.

Analyses of Fertilizers. By C. A. Goessmann. (Bulletin No. 102, pp. 40.)

Analyses of commercial fertilizers inspected during 1904 and of miscellaneous fertilizing materials sent to the station for examination are reported.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 192, pp. 4.)

This is a summary for December, 1904.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 193, pp. 4.)

This is a summary for January, 1905.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

The Care and Handling of Milk. By C. E. Marshall, W. R. Wright, and J. Michels. (Bulletin No. 221, pp. 53–74, figs. 12.)

A popular discussion of this subject, more technical treatment of which is given in earlier bulletins of the station. The causes and conditions of milk contamination are explained and practical means of producing pure milk are described.

The Codling Moth in Michigan. By R. H. Pettit. (Bulletin No. 222, pp. 77–92, figs. 3.)

This is a compilation of information based on observations made in Michigan with reference to generations of the codling moth, its egg and egg-laying habits, natural enemies, and methods of treatment.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 109–275, figs. 30.)

This includes a report of the secretary and treasurer, and brief accounts of the work of the year in the different departments of the station, a meteorological summary for the year, and reprints of Bulletins 211–216 and Special Bulletins 20–23.

MINNESOTA STATION, St. Anthony Park, W. M. Liggett, Director.

Potatoes at University Farm. By S. B. Green. (Bulletin No. 87, pp. 12.)

The yield and susceptibility to disease of a large number of varieties of potatoes grown at the experiment station are reported, with descriptions of some of the varieties and suggestions as to treatment for diseases and selection of disease-resistant seed. Brief notes are also given on seedling potatoes which are being tested at the station.

Injurious Insects of 1904. By F. L. Washburn. (Bulletin No. 88, pp. 197, pl. 1, figs. 177.)

A detailed account of injurious insects noted and studied during the year.

MISSISSIPPI STATION, Agricultural College, W. L. Hutchinson, Director.

Inspection and Analyses of Commercial Fertilizers on Sale in the State. By W. F. Hand et al. (Bulletin No. 82, pp. 27.)

The results of inspection of fertilizers sold in Mississippi during the season of 1902–3 are reported.

Report of Field Work Done at the College Station for 1903. By W. R. Perkins. (Bulletin No. 84, pp. 24.)

This bulletin gives accounts of tests of varieties of cotton, corn, oats, and wheat, and experiments with Johnson grass, alfalfa, and other grasses and forage plants, and on miscellaneous subjects.

Insects Injurious to Pecans. By G. W. Herrick. (Bulletin No. 86, pp. 42, figs. 24.)

The results of investigations of the life histories and habits of the following insects injurious to the pecan tree and fruit are reported: Pecan pruner (*Oncideres texana*), pecan-tree borer (*Sesia scitula*), pecan catocala (*Catocala viduata*), pecan-leaf caterpillars (*Datana angusii* and *D. integerrima*), live-oak root borer (*Mallodon melanopus*), fall webworm (*Hyphantria cunea*), white ant (*Termes flaripes*), oak pruner (*Elaphidion villosum*), hickory and pecan weevil (*Balaninus caryæ*), and pecan bud-worm (*Acrobasis* sp.). The methods of preparing and applying various insecticides for these insects are described.

The Mexican Cotton-Boll Weevil. By G. W. Herrick. (Circular No. 17, pp. 7, figs. 2.)

A brief summary of information regarding this insect.

Alfalfa. By. W. R. Perkins. (Circular No. 18, pp. 8, figs. 2.)

A brief compilation of information regarding this plant.

Strawberry Culture in Mississippi. By A. B. McKay. (Circular No. 19, pp. 6.)

A brief summary of information regarding varieties and methods of culture.

MISSOURI STATION, Columbia, H. J. Waters, Director.

The Planting and Care of Shade Trees. By H. S. Reed. (Circular of Information No. 17, pp. 16, figs. 7.)

A discussion of the proper methods of planting and care for shade trees on streets and lawns, reprinted from the Annual Report of the Missouri State Horticultural Society for 1903.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Eighteenth Annual Report, 1904. (Annual Report, 1904, pp. 20.)

This includes a financial statement, a summary of the experimental work of the station since its organization, and an outline of the work done during 1904.

NEW HAMPSHIRE STATION, Durham, W. D. Gibbs, Director.

Sixteenth Annual Report, 1904. (Annual Report, 1904, pp. 247–364.)

This includes a financial statement and brief summaries of the work of the year in the different departments of the station, with insect and meteorological records for the year.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Analyses of Fertilizers. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 177, pp. 42.)

This bulletin includes trade values of fertilizing ingredients for 1904 and the results of examinations of the standard materials supplying them, and analyses and valuations of home mixtures and special fertilizers, manufactured brands, and sundry fertilizing materials.

Insecticide Experiments for 1904. By J. B. Smith. (Bulletin No. 178, pp. 8.)

The results of experiments during the season of 1903 with a number of insecticides against the San José or pernicious scale are briefly summarized, with practical recommendations as to the preferable methods of treatment.

Free Distribution of Experiment Station Seeds. By B. D. Halsted. (Bulletin No. 179, pp. 18, pls. 4, fig. 1.)

A brief account of distribution by the station of seed of the following varieties: Station bush Lima bean, Kelsey bush Lima bean, Station yellow tomato, Jersey Belle eggplant, Voorhees Red sweet corn, Malakhov sweet corn from Russia, Apache corn from the Indians of New Mexico, and a mixture of 26 kinds of sweet corn.

NEW MEXICO STATION, Mesilla Park, L. Foster, Director.

Pumping for Irrigation. By J. J. Vernon, F. E. Lester, and H. C. McLallen. (Bulletin No. 53, pp. 16, figs. 2.)

Comparative tests of the fuel value of crude oil, kerosene, and gasoline for pumping water are reported.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. XXXV +197, figs. 82.)

This includes brief summaries of the work of the year in the different departments of the station, with which are bound the bulletins issued during the year.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Seed Selection According to Specific Gravity. By V. A. Clark. (Bulletin No. 256, pp. 367–425, pls. 2, figs. 4.)

"In this report is described a variation of the method of seed selection by salt solutions. The variation differs from the method as heretofore practiced in its making separates at much shorter intervals, thereby permitting of determining with greater precision the distribution of seeds with regard to specific gravity."

The Composition of Commercial Soaps in Relation to Spraying. By L. L. Van Slyke and F. A. Urner. (Bulletin No. 257, pp. 427–438.)

This is an account of a study of the composition of commercial soaps with a view to determining "why commercial whale-oil soaps in some cases fail to destroy insects and in some cases cause injury of foliage." Experiments in spraying with homemade fish-oil soap and with soap containing varying amounts of free alkali are also reported.

Homemade Soap for Spraying. By F. H. Hall, L. L. Van Slyke, and F. A. Urner. Bulletin No. 257, popular ed., pp. 6.)

A popular edition of Bulletin 257.

A Study of the Chemistry of Homemade Cider Vinegar. By L. L. Van Slyke. (Bulletin No. 258, pp. 439–494.)

The primary object of the work here reported was "to learn why many homemade cider vinegars fail to reach the legal standard of 4.5 per cent of acetic acid and 2 per cent of cider-vinegar solids. The investigation was extended so as to include (1) the composition of apple juice of different varieties of apples, (2) the changes in composition that apple juice undergoes during alcoholic and acetic fermentations, (3) conditions affecting these changes, and (4) the destructive fermentation of vinegar on long standing."

Making Cider Vinegar at Home. By F. H. Hall and L. L. Van Slyke. (Bulletin No. 258, popular ed., pp. 8.)

The Proportion of Animal Food in the Ration for Ducklings. By W. P. Wheeler. (Bulletin No. 259, pp. 16.)

The results are here reported of experiments made in continuation of those of previous years to learn how much animal food in the prepared forms commonly found in the market can be safely and effectively fed to young ducks.

Director's Report for 1904. By W. H. Jordan. (Bulletin No. 260, pp. 495–512.)

A brief administrative report on character and progress of the station work during the year.

Sulphur Sprays for Orchard Trees. II. By F. H. Hall, P. J. Parrott, S. A. Beach, and F. A. Sirrine. (Bulletin No. 262, popular ed., pp. 10, fig. 1.)

North Dakota Station, Agricultural College, J. H. Worst, Director.

Weed Studies. By L. R. Waldron. (Bulletin No. 62, pp. 439–457. figs. 5.)

The subjects upon which observations are reported in this bulletin are buried weed seed, notes on French weed, quack grass, and Canada thistle and cow thistle.

Adulterated Food Products and Food Studies. By E. F. Ladd. (Bulletin No. 63, pp. 461–534.)

A report of the results of inspection made under the provisions of the North Dakota food law during the past year, with special articles on Some Adulterations and Frauds in the Food Markets, by E. F. Ladd, and The Amount of Sodium Sulphite Recoverable from Preserved Meats and Evaporated Fruits, as a Basis for the Estimation of the Amount Originally Present, by C. D. Holley.

Ohio Station, Wooster, C. E. Thorne, Director.

Ohio Soil Studies. I. By A. D. Selby and J. W. Ames. (Bulletin No. 150, pp. 81–145, pls. 5, dgms. 10.)

This bulletin reports chemical and mechanical analyses of the soils of the experimental fields of the station, describes the types represented, and discusses the methods and results of the investigations reported.

Tobacco Diseases and Tobacco Breeding. By A. D. Selby. (Bulletin No. 156, pp. 87–114, figs. 11.)

This includes accounts of preliminary and experimental studies on mosaic disease, root rot, bed rot, broom rape, and curing-house troubles, and a statement concerning selection and crossing of tobacco in relation to new varieties.

Twenty-first Annual Report, 1902. (Annual Report, 1902, pp. XXIV +138, pl. 1.)

This report includes brief statements by the board of control, the bursar, and the director of the station, and Bulletins Nos. 129–135 issued by the station during the year.

Twenty-Second Annual Report, 1903. (Annual Report, 1903, pp. XVIII +156, pls. 9, figs. 20.)

This report includes brief statements by the board of control, the bursar, and the director of the station, and Bulletins Nos. 136–143 issued by the station during the year.

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Destroying Insects and Fungus Diseases. By O. M. Morris. (Bulletin No. 64, pp. 19.)

A summary of information based upon experiments by the station and on a study of spraying problems as affecting fruit growing in Oklahoma.

OREGON STATION, Corvallis, J. Withycombe, Director.

Fifteenth Annual Report, 1903. (Annual Report, 1903, pp. 62.)

This contains reports of the director, treasurer, and the heads of the different departments of the station.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

Annual Report of the Director. By H. P. Armsby. (Bulletin No. 69, pp. 12.)

A brief summary indicating the nature and extent of the work of the several divisions of the station during the fiscal year ended June 30, 1904.

Annual Report, 1903. (Annual Report, 1903, pp. 250, pls. 5, figs. 3, dgms. 4.)

This contains a financial statement and reports of the director and heads of the different divisions of the station, including the following special articles: Sugar-beet Culture, by M. H. Pingree and W. Frear; The Preservation of Urine Samples for Analysis, by M. S. McDowell; The Determination of Carbon and Hydrogen in Urine, by F. Thompson; Meteorology, by C. W. Norris and T. M. Carpenter; Methods of Steer Feeding, by T. I. Mairs and A. K. Risser; Forage and Soiling Experiments, 1902, by G. C. Watson and T. I. Mairs; Variety Tests, by A. K. Risser; The Available Energy of Timothy Hay, by H. P. Armsby and J. A. Fries; A Microscopic Examination of the State College Water Supply, by W. A. Buckhont; An Experiment in Ginseng Culture, by G. C. Butz; and Small Fruits in 1902, by J. P. Pillsbury. A list of available station publications is also given.

SOUTH CAROLINA STATION, Clemson College, P. H. Mell, Director.

Grasses and Forage Plants. By H. Benton. (Bulletin No. 93, pp. 21.)

Notes based on experiments and observation during the past twelve years are given on the following plants: Cowpeas, hairy or winter vetch, crimson clover, velvet bean (*Mucuna pruriens* var. *utilis*), Bermuda grass, Johnson grass, orchard grass, Texas blue grass, Kentucky blue grass, and *Paspalum dilatatum*.

Analyses of Commercial Fertilizers. (Bulletin No. 94, pp. 3.)

Analyses and valuations of 15 fertilizers are reported.

TEXAS STATION, College Station, J. A. Craig, Director.

Insects Mistaken for the Mexican Cotton-boll Weevil. By E. D. Sanderson. (Bulletin No. 74, pp. 13, pls. 5, figs. 4.)

"Owing to the large number of insects mistaken for the cotton-boll weevil, [this] bulletin has been prepared to describe the more common of these insects, their habits, and how they may be distinguished from the boll weevil."

Cutworms. By E. D. Sanderson. (Circular No. 5, pp. 2.)

Brief notes on life history and treatment.

Two Plum Weevils. By E. D. Sanderson. (Circular No. 6, pp. 4, figs. 4.)

Notes on life history and treatment of *Conotrachelus nenuphar* and *Cocotorus prunicida*.

Grasshoppers. By E. D. Sanderson. (Circular No. 7, pp. 4, figs. 3.)

Notes on life history, habits, and means of destruction.

The Cotton-boll Weevil in Texas. By E. D. Sanderson. (Circular No. 8, pp. 157–170, figs. 6.)

A paper read before a joint meeting of the Association of Economic Entomologists and the Society for the Promotion of Agricultural Science at St. Louis, Mo., December 30, 1903, explaining the nature and habits of the insect and its history and present status in Texas.

Utah Station, Logan, J. A. Widtsoe, Director.

Arid Farming in Utah. By J. A. Widtsoe and L. A. Merrill. (Bulletin No. 91, pp. 67–113, figs. 14.)

This is the first report on the work of the six experimental arid farms established and maintained with a State appropriation.

Wisconsin Station, Madison, W. A. Henry, Director.

Concentrated Feeding Stuffs and Fertilizers Licensed for Sale in Wisconsin, 1905. By F. W. Woll. (Bulletin No. 120, pp. 11.)

A report of the results of inspection during the year, with the text of the fertilizer and feed laws of the State.

Wyoming Station, Laramie, B. C. Buffum, Director.

Fourteenth Annual Report, 1904. (Annual Report, 1904, pp. 86, pls. 11.)

This contains a financial statement, the director's report outlining the work of the year and giving abstracts of the bulletins published during the year, and reports of the heads of the different departments of the station which include the following special articles: Lamb-feeding experiments, 1903–4, meteorology—summary for 1903, precipitation table for past ten years, irrigation experiments with potatoes, ornamental shrubs, herbaceous perennials, mushroom culture, varieties of vegetables, relative weights of kernel of oats, wheat varieties, and grasses and forage plants.

O

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MARCH AND APRIL, 1905.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ARIZONA STATION, Tucson, R. H. Forbes, Director.

Fifteenth Annual Report, 1904. (Annual Report, 1904, pp. 469–498, figs. 4.)

This report gives a brief account of the work of the different departments of the Arizona Station during the year ended June 30, 1904.

CALIFORNIA STATION, Berkeley, E. W. Hilgard, Director.

Poultry Feeding and Proprietary Foods. By M. E. Jaffa. (Bulletin No. 164, pp. 28.)

This is a summary of information regarding the nutritive and economic value of the more commonly used poultry foods, as well as of proprietary foods, including compiled and original analyses of a large number of these articles, with suggestions as to proper methods of compounding them into rations.

COLORADO STATION, Fort Collins, L. G. Carpenter, Director.

Early Cantaloupes. By P. K. Blinn. (Bulletin No. 95, pp. 8, figs. 4.)

The methods of seed selection and culture necessary to secure early cantaloupes of good quality are explained.

Feeding Steers on Sugar-beet Pulp, Alfalfa Hay, and Farm Grains. By W. L. Carlyle, C. J. Griffith, and A. J. Meyer. (Bulletin No. 97, pp. 13, figs. 8.)

Experiments made in cooperation with a beet-sugar company at Loveland, Colo., and with the Bureau of Animal Industry of this Department are reported. These experiments were made with 150 2-year-old grade steers to determine whether sugar-beet pulp can be profitably made a part of a ration for feeding such animals.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 75–115.)

This includes a financial statement and summaries of the work of the year ended June 30, 1904, in the different departments of the station.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

The Preparation of Tobacco Seed. By A. D. Shamel. (Bulletin No. 148, pp. 4.)

A method of separating heavy seed is described and the sowing of such seed is recommended.

Fourth Report of the State Entomologist. By W. E. Britton. (Annual Report, 1904, Part III, pp. X+199–310, pls. 16, figs. 17, maps 2.)

This is a detailed account of the work of the State entomologist during the year, including administrative details and accounts of spraying experiments on San José scale, mosquito investigations, study of the insect fauna of Connecticut, observations on tobacco insects, and general observations on injurious insects.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

Sixteenth Annual Report, 1904. (Annual Report, 1904, pp. 250, figs. 31.)

This contains brief reports by the different officers of the station and the following special articles, some of which have been published in bulletin form: The effect of different temperatures in determining the species of bacteria which grow in milk, the so-called "germicidal property" of milk, the value of a pound of milk solids in milk poor and rich in fat content, protecting cows from flies, yield of front and rear udder of the cow, the milk yield of quarters on same side of udder, a study of milk secretion, test of cows for advanced registration, test of Robin Butterfly, test of Lilly Eurotas second, oxygen in milk fever, skim milk for milch cows, the effect of silage on the acidity of milk, discussion of the amount of protein required in the ration for dairy cows, a successful brooder house, experiments on the digestibility of cereal breakfast foods, the nutritive value of prepared cereal products, and meteorological observations at Storrs and general weather and crop review.

DELAWARE STATION, Newark, A. T. Neale, Director.

The Growth of Crimson Clover. By C. L. Penny. (Bulletin No. 67, pp. 53, figs. 3.)

A detailed study of the growth of crimson clover, the proportions of parts, and content of fertilizing constituents at different stages of growth is reported, the object of the investigation being primarily to determine whether this plant in its early spring growth contains much less nitrogen than at full bloom. The increase in potash and phosphoric acid was also determined.

The Growth of Crimson Clover. By C. L. Penny. (Bulletin No. 67, pp. 24, figs. 2.)

An abridged edition of Bulletin 67.

The New K-L Mixtures and San José Scale. By C. P. Close. (Bulletin No. 68, pp. 23.)

This bulletin gives a brief account of the origin of kerosene-lime mixtures, methods of preparation, and results of experiments with the mixtures.

Dust Spraying in Delaware. Top-grafting Nursery Apple Trees. By C. P. Close. (Bulletin No. 69, pp. 8, fig. 1.)

The results of experiments during 1904 in private orchards with dust sprays and in top-grafting nursery apple trees are briefly reported.

FLORIDA STATION, Lake City, Andrew Sledd, Director.

Equine Glanders and Its Eradication. By C. F. Dawson. (Bulletin No. 77, pp. 243–283, figs. 3.)

This bulletin gives a brief history of this disease, describes its symptoms, diagnosis, means of transmission, and treatment, and gives accounts of outbreaks in Florida with a review of the legal aspects of the disease in various States.

GEORGIA STATION, Experiment, R. J. Redding, Director.

The Plum in Georgia. By N. H. Starnes. (Bulletin No. 67, pp. 237–285, pls. 4, figs. 63.)

Varieties and methods of culture adapted to Georgia are discussed in detail.

HAWAII STATION, Honolulu, J. G. Smith, Special Agent in Charge.

Methods of Milking. By F. G. Krauss. (Bulletin No. 8, pp. 15, figs. 5.)

This bulletin gives the results and conclusions from a 30-day trial of the Hegelund method of milking on 2 cows at the Kamehameha Boys' School in Honolulu.

IDAHO STATION, Moscow, H. T. French, Director.

The Grape Phylloxera. By J. M. Aldrich. (Bulletin No. 46, pp. 7.)

"The object of this bulletin is to call the attention of grape growers to the occurrence in Idaho of the above-named enemy of the grape, to describe its mode of attack and the symptoms of its presence, to discuss methods of eradication, and especially to call attention to the great importance of starting new vineyards in such a way as to make them immune to its injuries thereafter."

Pruning the Apple Orchard. By L. B. Judson. (Bulletin No. 47, pp. 36, figs. 19.)

Methods of pruning and implements used are fully described.

Annual Report, 1904. (Annual Report, 1904, pp. 39, figs. 6.)

"This report covers the work of the Idaho Experiment Station for the year ended June 30, 1904, and embraces brief reports from the various departments and a financial statement."

ILLINOIS STATION, Urbana, E. Davenport, Director.

Soil Treatment for the Lower Illinois Glaciation. By C. G. Hopkins and J. E. Readhimer. (Bulletin No. 99, pp. 562–599, figs. 12.)

The results of chemical analyses and of field experiments with different fertilizers and crop rotations are summarized and the practical treatment suggested by this work is outlined.

Science and Sense in the Inoculation of Legumes.. By C. G. Hopkins. (Circular No. 86, pp. 7.)

A circular of information concerning soil inoculation.

Factors in Crop Production with Special Reference to Permanent Agriculture in Illinois. By C. G. Hopkins. (Circular No. 87, pp. 32.)

This is an address presented before a State farmers' institute, and discusses the various factors involved in the production and maintenance of large crop yields on the different classes of Illinois soils.

Present Methods of Beef Production, II. By H. W. Mumford and L. D. Hall. (Circular No. 88, pp. 7.)

This is the second of a series of papers based on reports received from 509 cattle feeders in Illinois in reply to a list of 100 questions sent to each. This paper is confined to a consideration of methods of fattening cattle.

Treatment of Oats for Smut. By A. N. Hume. (Circular No. 89, pp. 3.)

Brief directions are given for the formalin and hot-water treatments, and other treatments are briefly referred to.

INDIANA STATION, Lafayette, A. Goss, Director.

Alfalfa in Indiana. By A. T. Wiancko and M. L. Fisher. (Bulletin No. 101, pp. 207–219.)

This bulletin reviews the history of alfalfa, describes its general characteristics and feeding value, and gives a summary of experiments begun in the spring of 1903 to ascertain the suitability of the soil and climatic conditions of Indiana for the profitable production of the crop. These experiments were made in cooperation with students of the School of Agriculture and other interested farmers in different parts of Indiana.

Apple Growing in Indiana. By J. Troop. (Bulletin No. 102, pp. 223–254, figs. 10.)

This bulletin discusses adaptability of soil and climate of different parts of Indiana, selection of soil and varieties, methods of planting and culture, marketing and judging fruit. An experiment on the influence of stock upon the graft is briefly referred to.

Rapid Method of Removing Smut from Seed Oats. By J. C. Arthur. (Bulletin No. 103, pp. 257–264.)

The formalin method is described and its application in the elevator treatment of oats for smut is explained.

A Simple Alkali Test for Ripeness of Cream. By H. E. Van Norman. (Bulletin No. 104, pp. 267–274, figs. 2.)

A simple test particularly adapted to creamery conditions is fully described and illustrated.

Corn Improvement in Indiana. By A. T. Wiancko. (Bulletin No. 105, pp. 277–322, figs. 15.)

Methods of selection, preparation, judging, and testing of seed corn are described, and the results of a number of experiments carried on in different parts of Indiana with a view to improving the quality and yield of corn are reported.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Experiments with Hand-fed Calves. By D. H. Otis. (Bulletin No. 126, pp. 163–198, figs. 14.)

The experimental work of the station on this subject is summarized and the practical applications of the results are discussed.

The Roots of Plants. By A. M. Ten Eyck. (Bulletin No. 127, pp. 199–252, figs. 26.)

The nature of the root growth of various farm crops under different conditions of soil and culture is discussed, investigations on the subject at Kansas and other stations being reviewed.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. XXX+253–256.)

This includes financial statements and a report of the council of the station briefly summarizing the work and publications of the station during the year.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Protein Content of the Wheat Kernel. By J. N. Harper and A. M. Peter. (Bulletin No. 113, pp. 12, figs. 2.)

Studies on the relation between certain physical characters of the wheat kernel and its chemical composition are reported and a proposed method for improving wheat by selection of seed is described.

Wheat. By J. N. Harper. (Bulletin No. 115, pp. 51–60.)

Tests of 20 varieties during one season are reported, with brief descriptions of the varieties, and a summary of the meteorological conditions during the season.

MAINE STATION, Orono, C. D. Woods, Director.

Digestion Experiments with Sheep and Steers. By J. M. Bartlett. (Bulletin No. 110, pp. 185–208.)

"This bulletin contains the report of digestion experiments made in the years 1901–1904 at [the Maine] Station with sheep and steers. In many instances the same kinds of food were used with both classes of animals, and the coefficients thus obtained are compared. The income and outgo of nitrogen is also reported."

Finances, Meteorology, Index. By C. D. Woods. (Bulletin No. 111, pp. 209–226+XII, pls. 2, figs. 2.)

"This bulletin contains the newspaper bulletins published in 1904, the summary of the meteorological observations, the report of the treasurer, and the index for the bulletins issued in 1904."

Potato Experiments in 1904. By C. D. Woods. (Bulletin No. 112, pp. 20.)

"This bulletin contains an account of storage experiments upon the rotting of potatoes due to late blight; experiments with dry Bordeaux mixture and soluble Bordeaux mixture as a preventive of blight; and experiments with home-mixed fertilizers for potatoes."

Fertilizer Inspection. By C. D. Woods and J. M. Bartlett. (Bulletin No. 114, pp. 37–52.)

"This bulletin contains the analyses of manufacturers' samples of brands of fertilizers licensed before March 1, 1905."

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 194, pp. 4.)

This is a summary for February, 1905.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 195, pp. 4.)

This is a summary for March, 1905.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Equipment for Breeding, Feeding, Care, and Management of Swine. Preliminary Report on Forage Crops for Swine. By R. S. Shaw. (Bulletin No. 223, pp. 95–124, figs. 18.)

"This publication consists of two parts. Part I contains illustrations and descriptive matter relating to the equipment recently installed and now in use at the Michigan Agricultural College for the breeding, feeding, care, and management of swine. Part II consists of illustrations and descriptive matter relating to the production of forage crops for swine, the methods employed in growing them, the manner in which they are utilized, and the results secured from their use."

MINNESOTA STATION, St. Anthony Park, W. M. Liggett, Director.

Soil Investigations. By H. Snyder and J. A. Hummel. (Bulletin No. 89, pp. 191–212, pls. 2.)

This bulletin gives some of the results of investigations relating to soil fertility, including studies of (1) the influence of crop rotations and use of farm manures upon the humus content and fertility of soils, (2) the water soluble plant food of soils, and (3) the production of humus in soils.

Heavy and Light Weight Grains. Starchy and Glutenous Grains. Light and Dark Colored Flax Seed. Rusted Wheat. Milling Tests of Wheat. By H. Snyder. (Bulletin No. 90, pp. 213–237, pls. 4, fig. 1.)

A progress report of investigations along these lines.

MISSOURI STATION, Columbia, H. J. Waters, Director.

Grain Rations for Dry Lot Hog Feeding. By E. B. Forbes. (Bulletin No. 65, pp. 27–92.)

Experiments with 122 pigs fed for periods of from 60 to 90 days during spring, midsummer, and fall to test the relative feeding value of linseed meal,

wheat middlings, wheat bran, oats, bone meal, and gluten feed as supplements to corn, and to compare soaked corn, corn meal, and corn-and-cob meal with whole corn for dry lot hog feed are reported.

The Farmers' Creamery in Missouri. By R. M. Washburn. (Circular of Information No. 18, pp. 21, figs. 6.)

Practical information is given regarding organization, construction, equipment, and management of small creameries.

Suggestions for Missouri Corn Growers. By M. F. Miller. (Circular of Information No. 19, pp. 27, figs. 6.)

This bulletin discusses three essentials to high yields of corn, namely, good seed, good soil, and good tillage, and describes methods of selecting, judging, and testing corn with a view to the development of improved strains.

MISSOURI FRUIT STATION, Mountain Grove, P. Evans, Director.

Peach Rosette. By P. Evans. (Bulletin No. 11, pp. 11, figs. 3.)

This bulletin briefly discusses distribution and treatment of this disease. Attention is also called to a disease of plum trees similar in appearance to peach rosette.

The Peach Industry in South Missouri. By P. Evans. (Bulletin No. 12, pp. 14, pls. 8.)

This bulletin contains general information regarding location, soils, varieties, planting, and cultivation of peach orchards in the Ozark region.

Biennial Report, 1903–1904. (Biennial Report, 1903–4, pp. 12, pls. 12.)

This is the third biennial report of this station summarizing its work and expenditures during 1903 and 1904.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

A Test of Calf Rations. By A. L. Haecker. Methods of Controlling Contamination of Milk During Milking. By A. L. Haecker and C. W. Melick. (Bulletin No. 87, pp. 18, figs. 7.)

This bulletin reports experiments with supplementary rations to be fed with skim milk, in continuation of tests reported in Bulletin 68, and also gives results of petri dish cultures exposed under different conditions in a dairy barn.

NEVADA STATION, Reno, J. E. Stubbs, Director.

Annual Report, 1904. (Annual Report, 1904, pp. 42.)

Brief accounts are given of work during the year ended June 30, 1904, in the different departments of the station.

NEW HAMPSHIRE STATION, Durham, W. D. Gibbs, Director.

Sixteenth Annual Report, 1904. (Bulletin No. 115, pp. 161–177.)

This is a brief summary of work of the year in the different departments of the station.

The Inspection of Feeding Stuffs in 1904. By F. W. Morse. (Bulletin No. 116, pp. 8.)

This bulletin gives the results of analyses of 50 samples of commercial feeding stuffs examined in cooperation with the State board of agriculture, and an abstract of the State feeding-stuff law.

Inspection of Fertilizers in 1904. By F. W. Morse. (Bulletin No. 117, pp. 9–16.)

This bulletin gives the results of analyses of 119 brands of fertilizers inspected in cooperation with the State board of agriculture.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Experiments on the Accumulation and Utilization of Atmospheric Nitrogen in the Soil. By E. B. Voorhees and J. G. Lipman. (Bulletin No. 180, pp. 37.)

Experiments are here reported which were designed "to bring out the relation of leguminous crops, such as cowpeas, to the soil nitrogen, and to determine, as far as practicable, the value of this leguminous crop as a source of nitrogen to subsequent nonleguminous crops." The history of investigations on this subject is briefly reviewed.

Insects Injurious to Shade Trees and Ornamental Plants. By J. B. Smith. (Bulletin No. 181, pp. 50, pls. 3, figs. 21.)

This is a revised and enlarged edition of Bulletin 103 of the station.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

Bovine Tuberculosis. By V. A. Moore. (Bulletin No. 225, pp. 79–92, figs. 7.)

"A plain and popular account of the disease for the general information of the public."

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

How Much Meat Shall Ducks Eat? By F. H. Hall and W. P. Wheeler. (Bulletin No. 259, popular ed., pp. 6.)

Some of the Relations of Casein and Paracasein to Bases and Acids, and Their Application to Cheddar Cheese. By L. L. Van Slyke and E. B. Hart. (Bulletin No. 261, pp. 37.)

This bulletin gives an account of a continuation of studies reported in Bulletin 214 of the station.

Sulphur Washes for Orchard Treatment, II. By P. J. Parrott, S. A. Beach, and F. Sirrine. (Bulletin No. 262, pp. 39–68, pls. 4.)

"This bulletin contains the results of the second year's experiments to determine to what extent sulphur washes may be used in the place of Bordeaux-arsenical mixtures for orchard treatment."

The Proteids of Butter in Relation to Mottled Butter. By L. L. Van Slyke and E. B. Hart. (Bulletin No. 263, pp. 69–93, pl. 1.)

This bulletin reports the results of investigations on "(1) the relation of casein compounds to cream ripening, (2) casein compounds present in butter and buttermilk, and (3) the relation of casein compounds to mottled butter."

OHIO STATION, Wooster, C. E. Thorne, Director.

Winterkilling of Peach Trees. By W. J. Green and F. H. Ballou. (Bulletin No. 157, pp. 115–134, figs. 9.)

This is a report of investigations in the Lake Erie fruit belt into the causes of the widespread winterkilling in that region.

Forestry Investigations, I. By W. J. Green and C. W. Waid. (Bulletin No. 158, pp. 135–164, figs. 10.)

This is a summary of the results of the station investigations relating to methods of growing post, pole, and tie timber, with suggestions as to cultural methods and financial possibilities.

The Maintenance of Fertility. Liming the Soil. By C. E. Thorne. (Bulletin No. 159, pp. 165–196, figs. 12.)

The functions of lime in the soil are briefly discussed, and field experiments with a variety of crops and extending over several years with lime on 3 types of

soil, namely, light sandy clay on the station farm at Wooster, cold heavy clay on the test farm at Strongsville, and worn clay soil on the test farm at Germantown, are reported.

Experiments with Fertilizers on Tobacco. By C. E. Thorne. (Bulletin No. 161, pp. 215–228, figs. 3.)

Experiments carried on at the test farm near Germantown since 1903 are reported.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

Condimental, Tonic, and Other Stock Foods. By W. Frear. (Bulletin No. 70, pp. 7.)

Analyses of a number of these foods are reported, with notes on their food value.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Experiments in Grass Culture. By H. J. Wheeler and G. E. Adams. (Bulletin No. 103, pp. 17–45, pls. 2.)

An account is given of experiments which were undertaken to determine the most economical amounts of nitrogen, phosphoric acid, and potash to apply to grass lands, to determine the relative efficiency of like applications of phosphoric acid in different forms, and to study the economy of the intensive system of harrowing.

SOUTH CAROLINA STATION, Clemson College, P. H. Mell, Director.

A Chemical Study of the Tea Industry in South Carolina. Part I. By F. S. Shiver. (Bulletin No. 96, pp. 32, pl. 1, figs. 5.)

"This bulletin discusses the following topics: (1) Historical review of tea culture, (2) production and consumption, (3) botanical characteristics, (4) the soil and climate, and (5) cultivation."

Analysis of Commercial Fertilizers. (Bulletins Nos. 97, 98, 99, 100, 101, 102, 104, 106, 107, pp. 3 each.)

Tabulated analyses and valuations of fertilizers.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Preliminary Experiments with Vapor Treatments for the Prevention of the Stinking Smut of Wheat. By W. A. Wheeler. (Bulletin No. 89, pp. 19, fig. 1.)

This bulletin gives the results of experiments undertaken with a view to securing an effective, inexpensive, and practical method of dry treatment for wheat smut. The method and apparatus successfully used in treating grain with formaldehyde vapor are described.

Tankage and Other By-products for Pigs. Shrunken Wheat for Swine. By J. W. Wilson and H. G. Skinner. (Bulletin No. 90, pp. 12.)

An account is given of experiments to determine the relative feeding value for pigs of tankage, blood meal, linseed meal, ground flax, and skim milk when fed with ground barley as a basal grain ration, the value of rape as a pasture for pigs receiving all the grain they would eat, and the practicability of supplementing grain with the above by-products for pigs on rape pasture. Experiments to determine the feeding value of wheat more or less damaged by rust are also briefly reported.

Cooperative Tests in 1904 of Peas, Beans, Sweet Corn, and Cabbage. By N. E. Hansen, V. Fulkerson, and E. G. Sanderson. (Bulletin No. 91, pp. 22.)

A series of tests of varieties of these crops made during 1904 in cooperation with the Bureau of Plant Industry of this Department is reported, with descriptions and a classification of the varieties tested.

TEXAS STATION, College Station, J. A. Craig, Director.

The Composition of Rice By-products. By G. S. Fraps. (Bulletin No. 73, pp. 14, fig. 1.)

This bulletin gives detailed information regarding the composition and food value of rice bran, rice polish, and rice hulls.

VIRGINIA STATION, Blacksburg, A. M. Soule, Director.

The Composition of Cider as Determined by Dominant Fermentation with Pure Yeats. By W. B. Alwood, R. J. Davidson, and W. A. P. Moncure. (Bulletin No. 150, pp. 33.)

An account is given of a series of experiments begun in the autumn of 1901.

Apple Production in Virginia. By W. B. Alwood. (Bulletin No. 151, pp. 37–58, maps 3.)

This bulletin is supplementary to Bulletin 101 of the station and deals with apple production in Virginia as shown by railroad shipments.

Experiments with Caustic Soda and Some Patent Washes Against the San José Scale. By J. L. Phillips. (Bulletin No. 152, pp. 61–67.)

Experiments begun in the spring of 1903 on a number of 2-year-old apple trees slightly infested with the San José scale are reported.

The Horn Fly. By J. Spencer. (Bulletin No. 153, pp. 71–77, figs. 5.)

A brief general account of the horn fly is given and the appliance used at the station for spraying animals with kerosene emulsion is described.

Annual Report, 1904. (Annual Report, 1904, pp. 27.)

Accounts are given of changes in organization and additions to equipment, as well as outlines of the work in the different departments of the station.

WEST VIRGINIA STATION, Morgantown, J. H. Stewart, Director.

Mixtures and Appliances for Spraying. By T. C. Johnson. (Bulletin No. 93, pp. 69–118, pls. 12.)

A compilation of information on this subject.

Commercial Fertilizers. By J. H. Stewart and B. H. Hite. (Bulletin No. 95, pp. XIV+15–68.)

A complete report of results of fertilizer inspection during 1904.

San José Scale in West Virginia. By F. E. Brooks and W. E. Rumsey. (Special Bulletin No. 3, pp. 135–141, figs. 6.)

A summary of information regarding this insect and its treatment based largely upon observations in West Virginia.

WISCONSIN STATION, Madison, W. A. Henry, Director.

On the Relation of Food to the Production of Milk and Butter Fat by Dairy Cows. By F. W. Woll. (Bulletin No. 116, pp. 85, figs. 8.)

This is a summary and critical discussion of observations and experiments at the Wisconsin Station and elsewhere bearing on this subject.

The Relation of Food to Dairy Production. By F. W. Woll. (Bulletin No. 117, pp. 16, fig. 1.)

A summary and discussion of results of investigations by the Wisconsin Station bearing on this subject.

Licensed Commercial Feeding Stuffs, 1904. By F. W. Woll and G. A. Olson. (Bulletin No. 118, pp. 50.)

This bulletin reports the results of inspection under State law, with a discussion of the quality and cost of feeding stuffs sold in the State.

A Report on Cranberry Investigations. By A. R. Whitson, E. P. Sandsten, L. P. Haskins, and H. Ramsay. (Bulletin No. 119, pp. 77, figs. 37, dgm. 1.)

This is a summary of the results obtained in investigations made during 1903 and 1904 in cooperation with the irrigation and drainage investigations of this Office. The bulletin discusses soil and fertilizer; irrigation, drainage, and sanding as a means of protection from frost; character, storage, and management of water supply; time of planting and preparation of ground; harvesting; storage and keeping; varieties; diseases and insect enemies; weeds, and mosses.

Licensed Commercial Fertilizers and Feeding Stuffs, 1905. By F. W. Woll and G. A. Olson. (Bulletin No. 122, pp. 28.)

Analyses and guaranteed composition of fertilizers and feeding stuffs licensed for sale during 1905 under State laws are reported, with notes on composition, valuation, and purchase of such materials and the text of the laws relating to their inspection.

O

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MAY AND JUNE, 1905.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama College Station, Auburn, J. F. Duggar, Director.

Diseases of the Apple, Cherry, Peach, Pear, and Plum; With Methods of Treatment. By E. M. Wilcox. (Bulletin No. 132, pp. 75–142, pls. 9, dgm. 1.)

Notes are given on this subject, and many of the diseases mentioned are illustrated. A bibliography of each disease is appended.

Alabama Tuskegee Station, Tuskegee, G. W. Carver, Director.

How to Build Up Worn Out Soils. By G. W. Carver. (Bulletin No. 6, pp. 15, figs. 2.)

This is a discussion of this subject based upon the results of eight years' study at the Tuskegee Station.

Arizona Station, Tucson, R. H. Forbes, Director.

Steer Feeding Experiments. By G. H. True and T. F. McConnell. (Bulletin No. 50, pp. 493–522, pls. 2.)

This bulletin reports the results of feeding experiments with four lots of yearlings and 2-year-old steers from 1899 to 1904. The purpose of the experiments was to compare the value of alfalfa straight rations with combined rations of alfalfa and carbohydrate feeds.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Cotton Food Products in Hog Feeding. By R. R. Dinwiddie. (Bulletin No. 85, pp. 28.)

An account is given of a continuation of experiments previously reported in Bulletin 76 of the station. "Feeding trials have been made with cotton-seed meal, chopped cotton seed, cotton oil, and cotton-hull bran with the object, mainly, of learning something more of the toxic or poisonous effects of these foods on hogs, the maximum safe allowance at different stages of growth, and of their utility or otherwise in pork production under any circumstances."

Asparagus and Salt. Asparagus Growing in Arkansas. Rhubarb in Arkansas. By E. Walker. Fertilizers Registered for Sale in Arkansas during 1905. By A. M. Muckenfuss. (Bulletin No. 86, pp. 31–57.)

Investigations relating to the use of salt as a manure for asparagus at the station and elsewhere are reviewed and methods of culture of asparagus and rhubarb applicable to Arkansas are described. Analyses of fertilizers inspected by the State chemist during 1905 are tabulated.

California Station, Berkeley, E. W. Hilgard, Director.

Asparagus and Asparagus Rust in California. By R. E. Smith. (Bulletin No. 165, pp. 99, figs. 46.)

This is a report to certain asparagus growers, canners, and dealers of San Francisco, Sacramento, and adjoining territory on experiments conducted by the author during the seasons of 1903 and 1904 in the effort to control the asparagus rust. The nature, cause, and methods of combating the disease are described in detail, and brief notes are given on the insects affecting the asparagus plant.

Colorado Station, Fort Collins, L. G. Carpenter, Director.

Digestion Experiments with Some Colorado Hays and Fodders. By W. P. Headden. (Bulletin No. 93, pp. 44.)

Four series of experiments with wethers between three and four years old to determine the digestibility of alfalfa, timothy, native hay, corn fodder, sorghum, and saltbush are reported.

The Shade Trees of Denver. By W. Paddock and B. O. Longyear. (Bulletin No. 96, pp. 14, pls. 13.)

Descriptions are given of 60 species and varieties of trees foreign to Colorado, which are growing successfully in Denver. Notes are also given on methods of planting and caring for trees.

Beet Worms and Their Remedies. By C. P. Gillette and S. A. Johnson. (Bulletin No. 98, pp. 22, pls. 2, figs. 2.)

Descriptions and notes on methods of treatment are given for the beet webworm, beet army worm, and cutworms.

How Can We Maintain the Fertility of Our Colorado Soils? By W. P. Headden. (Bulletin No. 99, pp. 16.)

A brief discussion of the origin and nature of the soils of Colorado, with practical suggestions for the maintenance of their fertility by means of the proper use of commercial, barnyard, and green manures.

The Western Cricket. By C. P. Gillette and S. A. Johnson. (Bulletin No. 101, pp. 16, figs. 3.)

This is a popular treatment of the life history and habits of *Anabrus simplex*, with practical suggestions for the destruction of this pest.

Connecticut State Station, New Haven, E. H. Jenkins, Director.

A New and Valuable Cover Crop for Tobacco Fields. By A. D. Shamel. (Bulletin No. 149, pp. 7.)

The Russian vetch, which has been found well adapted to this purpose, is described and methods of culture are given.

The Selection of Tobacco Seed Plants. By A. D. Shamel. (Bulletin No. 150, pp. 13, pls. 5.)

This is an account of investigations carried on in cooperation with the Bureau of Plant Industry of this Department to determine whether it is possible for the tobacco grower to grow seed which will produce uniform types or strains of tobacco. Simple and practical directions for securing this desired end are given.

The Chief Injurious Scale Insects of Connecticut. By W. E. Britton. (Bulletin No. 151, pp. 16, figs. 17.)

"The object of this bulletin is to illustrate and describe briefly the more important kinds occurring in Connecticut, so that people will be able to recognize them more readily and combat them more successfully."

Report of the Station Botanist. By G. P. Clinton. (Annual Report, 1904, Part IV, pp. 311–384, pls. 20.)

Notes are given on the fungus and bacterial diseases and physiological troubles of cultivated plants which were prominent during the past year in Connecticut and on those which were much less conspicuous than during the two previous seasons, "together with brief descriptions of the few troubles found in the State for the first time and additional information gained concerning old ones."

Feeding Stuffs, Fertilizing Orchards, Seed Tests, Tobacco Work, etc. Index. (Annual Report, 1904, Part V, pp. 385–482+XV, pl. 1.)

This includes a report of inspection of feeding stuffs during the year, with discussions of the general character of the different feeds, the digestibility of feeding stuffs, notes on purchase of commercial feeding stuffs, weight per quart of feeding stuffs, etc., and the following special articles: Test of the Vitality of Vegetable Seeds, by E. H. Jenkins; Observations on the Fertilization of Peach Orchards, by E. H. Jenkins; Cattle Poisoned by Fresh Paint, by E. H. Jenkins; Experiments in Breeding Tobacco, by E. H. Jenkins; Investigations on the Vegetable Proteids, by T. B. Osborne; examination of Babcock test apparatus; and tests of Guernsey cows for advanced registry.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

The Camembert Type of Soft Cheese in the United States. By H. W. Conn et al. (Bulletin No. 35, pp. 32, figs. 2.)

This is a preliminary report on investigations made by the station in cooperation with the Dairy Division of the Bureau of Animal Industry of this Department, and deals briefly with the organisms involved in the process of ripening Camembert cheese and the possibility of controlling the process so as to secure reasonably uniform results.

DELAWARE STATION, Newark, A. T. Neale, Director.

The Study of the Diseases of Some Truck Crops in Delaware. By C. O. Smith. (Bulletin No. 70, pp. 16, pls. 2, figs. 6.)

Notes are given on the following diseases found to be prevalent in the State: Leaf-spot of cucurbits (*Sphærella citrullina*), a leaf-spot disease of eggplant (*Ascochyta lycopersici*), and leaf-spot of beans and cowpeas (*Phyllosticta phaseolina*).

FLORIDA STATION, Lake City, Andrew Sledd, Director.

Forage Crops. The Silo. By C. M. Conner. (Bulletin No. 78, pp. 285–301, figs. 8.)

A preliminary report based largely upon experiments at the station is given on varieties, methods of culture, and feeding value of sorghum, rape, teosinte, rye, and para grass. The construction of a round silo and the best crops for ensiling are briefly discussed.

The Composition of Some of the Concentrated Feeding Stuffs on Sale in Florida. By A. W. Blair. (Bulletin No. 80, pp. 19.)

Analyses of a number of feeding stuffs on sale in the State are reported and the results are discussed with reference to the need for a feeding stuffs inspection law and to the classification and more economical use of feeding stuffs.

ILLINOIS STATION, Urbana, E. Davenport, Director.

The Curculio and the Apple. By C. S. Crandall. (Bulletin No. 98, pp. 465–560, pls. 3, figs. 22.)

This is a detailed account of studies made throughout the State on the life history, habits, and treatment of the curculio undertaken because of serious and widespread injury to the apple crop.

Directions for the Breeding of Corn, Including Methods for the Prevention of Inbreeding. By C. G. Hopkins, L. H. Smith, and E. M. East. (Bulletin No. 100, pp. 599–625, figs. 2.)

A method based upon nine years' experience in corn breeding at the station

which gives a perpetual system of planting designed to avoid inbreeding is described.

Crops for the Silo, Cost of Filling, and Effect of Silage on the Flavor of Milk. By W. J. Fraser. (Bulletin No. 101, pp 627–646, figs. 7.)

The experience of the station on these points is summarized.

INDIANA STATION, Lafayette, A. Goss, Director.

Commercial Fertilizers. By A. Goss and W. J. Jones, jr. (Bulletin No. 106, pp. 52, map 1.)

The results of analyses of 643 samples of fertilizers inspected during 1904 are reported and discussed.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Experiments at Fort Hays Branch Station, 1902–1904. (Bulletin No. 128, pp. 253–329, figs. 14.)

This bulletin contains a brief historical statement regarding this substation and accounts of its equipment and of the various experiments with field crops, forage plants, fruits, and live stock carried on during the years 1902–1904.

MAINE STATION, Orono, C. D. Woods, Director.

Summary of Experiments in Practical Horticulture. Red Clover from Various Sources. By W. M. Munson. (Bulletin No. 113, pp. 21–36.)

"This bulletin contains a brief résumé of the practical lines of horticultural work as carried on at the station; also an account of a comparative study of red clover grown from seed obtained from 29 different regions, in America, Europe, Asia, and New Zealand."

Feeding Stuff Inspection. By C. D. Woods and J. M. Bartlett. Low Grade and High Grade Cotton-seed Meal Compared. By J. M. Bartlett. (Bulletin No. 115, pp. 53–76.)

"This bulletin contains the analyses of samples of feeding stuffs received from correspondents and collected by the inspector in the fall and winter, 1904–5, a discussion of the results of the inspection, and the report of studies upon cotton-seed meal."

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Acting Director.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 196, pp. 4.)

This is a summary for April, 1905.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 197, pp. 4.)

This is a summary for May, 1905.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 101–272, figs. 4.)

This report contains a list of station bulletins available and the reports of the treasurer and heads of the different departments of the station. The more important articles in the latter are: Crops as related to weather conditions; the practice of soil sterilization; the influence of electrical potential on the growth of plants; some important literature relating to diseases, etc., of crops not generally believed to be caused by fungi or insects; digestion experiments with sheep; the digestibility of galactan; the feeding value of apple pomace; Blomo feed for horses; report on official inspection of commercial fertilizers and on general work in the chemical laboratory; manures and fertilizers furnishing nitrogen compared; the relative value of muriate and high-grade sulphate of potash; comparison of different potash salts for field crops; comparison of phos-

phates on the basis of equal application of phosphoric acid; soil tests; special corn fertilizer *v.* fertilizer richer in potash; manure alone *v.* manure and potash; experiment in manuring grass land; experiment in the application of manure; nitrate of soda for rowen; variety test, potatoes; poultry experiments; report on plums; and growing chrysanthemums for a retail trade.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Observations on the Influence of Nodules on the Roots upon the Composition of Soy Beans and Cowpeas. By C. D. Smith and F. W. Robison. (Bulletin No. 224, pp. 127–132.)

"This bulletin is designed to put on record the results of certain investigations made on the station plats, as to the influence of nodules upon the appearance of the growing crops and upon the quantity and quality of the harvest."

Report of South Haven Substation for 1904. By T. A. Farrand. (Special Bulletin No. 30, pp. 30.)

Notes are given on varieties of small fruits and orchard fruits, with brief accounts of spraying experiments and tests of cover crops.

Report of Upper Peninsula Substation for 1904. By L. M. Geismar. (Special Bulletin No. 31, pp. 36.)

Notes are given on weather conditions, and tests of various field crops, forage plants, vegetables, small fruits, orchard fruits, and ornamental plants.

MINNESOTA STATION, St. Anthony Park, St. Paul, W. M. Liggett, Director.

Poultry Culture in Minnesota. By C. S. Greene. (Bulletin No. 91, pp. 239–258, figs. 2.)

This bulletin, prepared "in response to numerous inquiries as to the advantages of poultry keeping in relation to other branches of farming in Minnesota," describes "some of the conditions necessary to insure success and the easiest way to bring these conditions about."

MISSISSIPPI STATION, Agricultural College, W. L. Hutchinson, Director.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 42.)

This includes a financial statement of the Mississippi Station and reports by the director and heads of departments reviewing the work for the year 1904. A financial statement of the McNeill Branch Station and a report of the work of that station by the assistant director are included.

MONTANA STATION, Bozeman, F. B. Linfield, Director.

The Alkali Soils of Montana. By F. W. Traphagen. (Bulletin No. 54, pp. 91–121, pls. 5.)

This bulletin deals with the results of alkali soil examination of the past few years in Montana and elsewhere, repeats "some of the observations and conclusions of Bulletin No. 18, the edition of which is completely exhausted," and serves as an introduction to the detailed discussion of the soils of particular localities.

Second Annual Report of the State Entomologist. By R. A. Cooley. (Bulletin No. 55, pp. 123–180, pls. 3, figs. 25.)

Notes are given on the life history, habits, natural enemies, and means of repression of a large number of insects injurious to fruits in Montana.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Apple Scab and Cedar Rust. By R. A. Emerson. (Bulletin No. 88, pp. 21, figs. 9.)

This bulletin is mainly a record of results obtained in tests of spraying as a

preventive of these diseases, which have been unusually prevalent in eastern Nebraska during the past three years.

NEVADA STATION, Reno, J. E. Stubbs, Director.

Ground Squirrels and Other Rodent Pests in Nevada. By P. Frandsen. (Bulletin No. 58, pp. 34, pls. 5, figs. 6.)

The nature, habits, and most efficient methods of destroying the ground squirrel, pocket gopher, and other small animal pests are discussed, the data upon which the discussion is based being obtained in part from observations made at the request of a committee of farmers of South Fork Valley, Elko County, Nev.

NEW HAMPSHIRE STATION, Durham, W. D. Gibbs, Director.

Tile Drainage. By F. W. Taylor. (Bulletin No. 118, pp. 19–48, figs. 12.)

This bulletin describes the implements and methods used in tile drainage, as well as the classes of lands needing drainage in New Hampshire and the best methods of handling them. A drainage system put in at the New Hampshire Station is described and a statement of cost is given.

Forestry Experiments. By F. W. Rane. (Bulletin No. 119, pp. 51–68, figs. 8.)

This bulletin discusses the advantages and methods of utilizing native pine seedlings for forest planting.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

A Popular Review of the Work of the Experiment Station. By E. B. Voorhees. (Bulletin No. 182, pp. 42.)

The work of the station during the twenty-five years of its existence is reviewed.

The Analyses of Stone Lime, Prepared Lime, Oyster Shell Lime, Wood Ashes, and Marl. By L. A. Voorhees. (Bulletin No. 183, pp. 27.)

Chemical and physical examinations of a large number of samples of these materials are reported and discussed.

Condimental Feeds and Condition Powders. By J. P. Street. (Bulletin No. 184, pp. 27.)

This bulletin reports the results of microscopical and chemical examinations of 50 brands of condimental feeds and condition powders found in the New Jersey markets. The chemical examinations included "determination of the various food compounds present, as well as a more or less complete analysis of the ash ingredients, including phosphoric acid, potash, lime, chlorin, sulphuric acid, magnesia, soda, iron, carbonic acid, nitric acid, and in soluble matter."

Concentrated Feeding Stuffs. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 185, pp. 38.)

"In this bulletin is presented the work of the station in its fifth examination of the concentrated feeding stuffs sold in the State, under the law of March 15, 1900." Analyses of 397 samples are reported.

NEW MEXICO STATION, Mesilla Park, L. Foster, Director.

Onion Culture. By F. García. (Bulletin No. 52, pp. 32, figs. 10.)

This is a discussion of varieties and methods of culture adapted to New Mexico, based mainly upon three years' experience in growing onions at the station. A Spanish edition of this bulletin has been issued.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Mushroom Growing for Amateurs. By G. F. Atkinson and R. Shore. (Bulletin No. 227, pp. 415–424, figs. 4.)

The bulletin describes briefly methods to be employed under the conditions under which most amateur growers must work. The directions are based upon the results of experiments made to determine what success might be expected where no special houses and no elaborate preparations are made for the cultivation of mushrooms.

Potato Growing in New York. By J. L. Stone. (Bulletin No. 228, pp. 427–455, figs. 2.)

This is "an expository bulletin on potato growing in New York State, embodying the experience of the best potato farmers and the results of numerous scientific experiments." It combines the data contained in Bulletins 130, 140, 156, 191, and 196 of the station.

New York State Station, Geneva, W. H. Jordan, Director.

The Causes and Prevention of Mottles in Butter. By F. H. Hall, L. L. Van Slyke, and E. B. Hart. (Bulletin No. 263, popular ed., pp. 10, fig. 1.)

A popular edition of Bulletin 263.

Potato Spraying Experiments in 1904. By F. C. Stewart, H. J. Eustace, and F. A. Sirrine. (Bulletin No. 264, pp. 95–204, pls. 16, map 1.)

This bulletin gives the details of 58 different spraying experiments in various parts of New York, including an account of a continuation of a 10-year potato spraying experiment begun at the station in 1902.

Profits from Spraying Potatoes. By F. H. Hall et al. (Bulletin No. 264, popular ed., pp. 16, figs. 3.)

I. Plant-food Constituents used by Bearing Fruit Trees. II. Tabulated Analyses Showing Amounts of Plant-food Constituents in Fruits, Vegetables, etc. By L. L. Van Slyke, O. M. Taylor, and W. H. Andrews. (Bulletin No. 265, pp. 205–230.)

The first article reports results of studies of the amounts of nitrogen, phosphoric acid, potash, lime, and magnesia used in one growing season by typical representatives of three standard varieties each of apple, peach, pear, plum, and quince trees in full bearing. The second article gives a tabulation of data which have been accumulated by the station.

Report of Analyses of Samples of Fertilizers Collected by the Commissioner of Agriculture during the Summer and Fall of 1904. (Bulletin No. 266, pp. 231–261.)

Effect of Certain Arsenites on Potato Foliage. By W. H. Jordan, F. C. Stewart, and H. J. Eustace. (Bulletin No. 267, pp. 263–284, pls. 2, fig. 1.)

"This bulletin gives an account of experiments designed to determine to what extent and in what manner Paris green and arsenite of lime are injurious to potato foliage."

Poisoning the Potato Beetle. By F. H. Hall et al. (Bulletin No. 267, popular ed., pp. 11, figs. 2.)

North Dakota Station, Agricultural College, J. H. Worst, Director.

Root Systems of Field Crops. By J. H. Shepperd. (Bulletin No. 64, pp. 525–536, pls. 10.)

The results presented in this bulletin are supplementary to those reported in Bulletins 36 and 43 of the station.

Report of Food Commissioner. By E. F. Ladd. (Annual Report, 1904, Part II, pp. 208, pl. 1.)

This gives the results of the inspection and analysis of food products in North Dakota under the direction of the food commissioner for the year 1904.

OHIO STATION, Wooster, C. E. Thorne, Director.

Proceedings of the Second Annual Reunion of the Ohio State Board of Agriculture; the College of Agriculture, Ohio State University; the Farmers' Institute Lecturers of Ohio; and the Ohio Agricultural Experiment Station. (Bulletin No. 151, pp. 147–194.)

A report of the above proceedings, which were held in the museum of the Ohio Agricultural Experiment Station, Wooster, Ohio, Thursday and Friday, June 16 and 17, 1904.

The Codling Moth. By W. J. Green and J. S. Houser. (Bulletin No. 160, pp. 197–214, pls. 5.)

Notes are given on life history, habits, and methods of treatment.

OREGON STATION, Corvallis, J. Withycombe, Director.

The Apple in Oregon. By E. R. Lake. (Bulletin No. 82, pp. 37, figs. 11.)

This is part 2 of a treatise on this subject and deals with varieties for home use, pollination, tillage, cover crops, pruning.

The Perpetuation of Pure Cultures for Butter Starters. By E. F. Pernot. (Bulletin No. 83, pp. 8, fig. 1.)

A simple and effective means of perpetuating pure cultures for starters which is claimed to be within the capabilities of any modern dairyman is described.

Poultry under Confinement. By J. Withycombe. (Bulletin No. 84, pp. 8, figs. 2.)

"The data submitted in this bulletin are for the purpose of illustrating the financial returns from a small flock of poultry kept under confinement to show the percentage of eggs hatched, chickens grown to marketable age, and the proportion of sexes."

Digestibility of Vetch Hay and Corn Silage. By J. Withycombe and A. L. Knisely. (Bulletin No. 85, pp. 13.)

Four feeding experiments with cattle, each extending over a period of seven days, to determine the digestibility of vetch hay and corn silage are reported.

Irrigation in Klamath County. By F. L. Kent. (Bulletin No. 86, pp. 16, figs. 3.)

This is an account of experiments made in cooperation with this Office to determine losses by seepage and evaporation, the duty of water under different conditions, and the cost of applying water in irrigation.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

Annual Report, 1904. (Annual Report, 1904, pp. 294, pls. 21.)

This report contains a financial statement and accounts of work during the year in the different divisions of the station, as well as the following special articles: Tobacco Experiments, Shelter Tent Experiments with Sumatra Leaf, by W. Frear; Studies Upon the Composition of Timothy Hay, with Notes upon the Chemistry of Grasses, by W. Frear et al.; Analyses of Miscellaneous Feeding Stuffs, by M. H. Pingree; Analyses of Miscellaneous Fertilizer Materials, by M. S. McDowell; Examination of Spices, by W. Frear et al.; The Rapid Analysis of

Cream of Tartar and Tartaric Acid Baking Powders, by R. O. Brooks; A Study of the Hübl, Hanus, and Wijs Methods of Iodin Absorption, by H. L. Wilson; Determination of Hippuric Acid in Urine, by R. E. Stallings; Meteorology, by T. M. Carpenter; Forage and Soiling Experiments, 1903, by G. C. Watson and T. I. Mairs; Variety Tests of Wheat, Oats, and Potatoes, by G. C. Watson and A. K. Risser; Methods of Steer Feeding, Barn *v.* Shed, by T. I. Maris and A. K. Risser; The Respiration Calorimeter at the Pennsylvania Experiment Station, by H. P. Armsby; Composition and Digestibility of Distillers' Dried Grains, by A. K. Risser; Spraying Grapes for Black Rot in Erie County, by G. C. Butz; Small Fruits in 1903, by J. P. Pillsbury; and detailed meteorological records for 1903.

PORTO RICO STATION, Mayaguez, D. W. May, Special Agent in Charge.

Tobacco Investigations in Porto Rico during 1903–4. By J. van Leenhoff, jr. (Bulletin No. 5, pp. 44, pls. 6, fig. 1.)

This bulletin describes methods of tobacco culture now practiced in Porto Rico and reports the results of experiments by the Porto Rico Station in growing, curing, and fermenting tobacco, with suggestions as to improvement of methods of culture and curing.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Plant Peculiarities as Shown by the Influence of Sodium Salts. By H. J. Wheeler. (Bulletin No. 104, pp. 49–92, pls. 8, dgms. 12.)

The results given in this bulletin were secured from experiments made from 1894 to 1899 at the Rhode Island Station "for the purpose of learning, if possible, if the application of sodium salts to the soil was apparently warranted in agricultural practice; and if so, with what plants, under what circumstances, and for what reasons." The results with the different kinds of plants are described and in some instances illustrated.

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

Reports of Experiments with Forage Crops at the Coast Land Experiment Station, 1904. By J. S. Newman and W. D. Garrison. (Bulletin No. 103, pp. 8.)

Miscellaneous notes on a number of forage plants are recorded.

Analyses of Cotton-seed Meals. (Bulletin No. 105, pp. 6.)

Analyses of 84 samples are reported.

Analyses of Commercial Fertilizers. (Bulletin No. 108, pp. 3.)

Analyses of 34 samples are reported.

Analyses of Commercial Fertilizers. (Bulletins Nos. 110, 111, 112, 113, pp. 4 each.)

Analyses of 160 samples are reported.

TEXAS STATION, College Station, J. A. Craig, Director.

Strawberries at Troupe Station. By E. C. Green. (Bulletin No. 72, pp. 15, fig. 1.)

The results of variety and shipping tests of strawberries at the Troupe Station, East Texas, are reported, with brief notes on the several varieties. Suggestions for strawberry culture under Texas conditions are also given.

Onions and Bunch Crops at Beeville. By J. K. Robertson and E. C. Green. (Bulletin No. 77, pp. 28, figs. 14.)

This bulletin gives the results of experiments at the Texas Station in the

cultivation, harvesting, and marketing of onions, beets, radishes, lettuce, carrots, and turnips during the season of 1903–4. Variety tests are also reported.

VERMONT STATION, Burlington, J. L. Hills, Director.

Commercial Feeding Stuffs. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 110, pp. 11–20.)

The results of inspection of 250 samples of commercial feeding stuffs collected during the fall of 1904 are summarized.

Abstract of Seventeenth Annual Report, 1903–4. By J. L. Hills. (Bulletin No. 111, pp. 23–68.)

This is a popular résumé of the more important matter contained in the annual report of the station.

Commercial Fertilizers. By J. L. Hills. C. H. Jones, and F. M. Hollister. (Bulletin No. 112, pp. 71–92.)

The results of analyses of samples of 57 brands of fertilizers are reported in this bulletin.

Preparation and Use of Sprays. By W. Stuart. (Bulletin No. 113, pp. 95–108.)

The purpose of this bulletin "is to present simple, concise, and up-to-date directions for controlling the commoner diseases and insects attacking Vermont crops by the use of fungicides, insecticides, or other preventive measures."

Alfalfa in Vermont. By J. L. Hills and L. R. Jones. (Bulletin No. 114, pp. 111–132, figs. 3.)

The character of the alfalfa plant is described and the results of 56 trials at as many different places in Vermont are summarized.

Disease-resistant Potatoes. By W. Stuart. (Bulletin No. 115, pp. 135–140.)

This bulletin gives the results of two years' study of the capabilities of different varieties of potatoes for disease resistance.

WISCONSIN STATION, Madison, W. A. Henry, Director.

Alfalfa, or Lucern. By R. A. Moore, A. L. Stone, and G. A. Olson. (Bulletin No. 121, pp. 22, figs. 8.)

This bulletin gives the results of experiments in the culture and curing of alfalfa at the Wisconsin Station during the seasons of 1903 and 1904, including comparative tests with alfalfa, clover, timothy, and brome grass.

The Beet-sugar Industry of Wisconsin. By F. W. Woll. (Bulletin No. 123, pp. 70, figs. 8.)

This bulletin, published in response to requests from farmers and business men for information on the subject of sugar-beet culture and the present condition of the Wisconsin beet-sugar industry, gives a brief account of the work of the station in studying the adaptability of Wisconsin to the culture of beets and the manufacture of beet sugar, with data as to value of the crop, effect of its culture on the fertility of the soil, and the financial status of beet-sugar manufacture.

Report on Tobacco Investigations in Wisconsin for 1903 and 1904. By E. P. Sandsten. (Bulletin No. 124, pp. 45, figs. 13.)

An account is here given of experiments made with the aid of a State appropriation of $3,000 (for two years) on improvement of seed, effect of fertilizers on yield and quality, value of cover crops, and the adaptability of Wisconsin soils and climate to the production of shade-grown Sumatra tobacco.

Silo Construction. By G. N. Knapp. (Bulletin No. 125, pp. 92, figs. 44.)

This bulletin describes in detail the construction of the 7 distinct types of soils in general use in Wisconsin.

Two Ways of Treating Tuberculosis in Herds. By H. L. Russell. (Bulletin No. 126, pp. 15, figs. 4.)

This bulletin gives a record of observations on 3 tuberculous herds, showing the advantages of proper care and treatment.

WYOMING STATION, Laramie, B. C. Buffum, Director.

Feeding Experiments with Lambs, 1903–4. By B. C. Buffum. (Bulletin No. 64, pp. 20, pls. 3.)

An account is given of experiments in which 60 lambs were fed for 100 days on 11.6 acres of field peas raised on sod land without irrigation.

○

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JULY AND AUGUST, 1905.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

California Station, Berkeley, E. J. Wickson, Acting Director.

Spraying for Scale Insects. By H. J. Quayle. (Bulletin No. 166, pp. 24, figs. 2.)

"The experiments recorded in this bulletin were conducted by the experiment station in cooperation with the Kings County Board of Horticulture and with the fruit growers in the neighborhood of Hanford. The work included spraying operations against * * * the brown apricot and San José scales."

Manufacture of Dry Wines in Hot Countries. By F. T. Bioletti. (Bulletin No. 167, pp. 66, figs. 17.)

This bulletin gives the results of a visit to some of the chief vine-growing regions of Europe and Algeria from October to December, 1904, for the purpose of studying the many changes made in French methods of grape-growing and wine-making. The observations reported relate chiefly to the methods of wine-making peculiarly adapted to hot climates and to methods of viticultural and œnological education in vogue in France. Tests of wine-making in California were made, and the possibility of the successful manufacture of dry wines in California is discussed.

Connecticut Storrs Station, Storrs, L. A. Clinton, Director.

Poultry Suggestions for the Amateur. By C. K. Graham. (Bulletin No. 36, pp. 12, figs. 9.)

A popular bulletin on the selection and packing of eggs for hatching purposes and on the incubation and care of chickens.

The So-Called "Germicidal Property" of Milk. By W. A. Stocking, jr. (Bulletin No. 37, pp. 20, dgms. 3.)

A popular treatment of a technical paper on this subject which appeared in the annual report for 1904, pp. 89–106. The purpose of the experiments was to investigate the cause of the decrease of the numbers of bacteria in milk under certain conditions, and the bulletin discusses the species of bacteria present in milk which are grouped into three general classes according to their behavior.

Idaho Station, Moscow, H. T. French, Director.

Raising Calves on Separator Milk. By H. T. French. (Bulletin No. 48, pp. 17, figs. 5.)

This bulletin gives the results of experiments made to demonstrate the feasibility of raising calves on milk from which the butter fat had been removed by means of the hand separator, and describes feeding experiments with the same calves as yearlings for the production of beef.

Soil Temperatures 1903–4. Summary of Weather Data 1894–1904. By G. A. Crosthwait. (Bulletin No. 49, pp. 8.)

Tabular summaries of soil temperatures for the years 1903 and 1904 and of weather data for the years 1894 to 1904, inclusive, at Moscow, Idaho, are reported in this bulletin.

Weather Data 1903–4. Summary for Eleven Years, 1894–1904. By G. A. Crosthwait. (Circular No. 1, pp. 28, map 1.)

Tabular monthly data for temperature, precipitation, barometric pressure, cloudiness, and wind for the years 1903 and 1904, and summaries of temperature and precipitation for the years 1894 to 1904, inclusive, at Moscow, Idaho, are reported.

ILLINOIS STATION, Urbana, E. Davenport, Director.

The Construction of Silos. By W. J. Fraser. (Bulletin No. 102, pp. 41, figs. 34.)

"The object of this bulletin is to direct attention to some important points in building silos, both in material used and in manner of construction." The topics discussed are: Essentials of a silo, location, form of silo, proportion and capacity of silos, and materials, styles, and cost of construction. The bulletin is profusely illustrated.

Should Dairy Cows be Confined in Stalls? By W. J. Fraser. (Circular No. 93, pp. 25, figs. 24.)

This circular gives the results of an inquiry among the dairy farmers of the State concerning the best method of keeping dairy cows, including stabling, bedding, feeding, and milking, many plans and illustrations accompanying the text.

Present Methods of Beef Production, V. By H. W. Mumford and L. D. Hall. (Circular No. 94, pp. 4.)

This circular gives summarized data of information derived from correspondents regarding the grades of animals and the methods employed in breeding beef cattle for market.

Suggestions for the Improvement of Dairy Barns. By H. A. Hopper. (Circular No. 95, pp. 20, figs. 15.)

Illustrated and descriptive notes on the construction, ventilation, and care of dairy barns in Illinois.

Soil Improvement for the Illinois Corn Belt. By C. G. Hopkins. (Circular No. 96, pp. 16, figs. 5.)

This circular gives a preliminary account of the results of experiments in crop rotation and different methods of soil treatment on the ordinary prairie land of Illinois.

INDIANA STATION, Lafayette, A. Goss, Director.

Agriculture at Purdue University. By W. E. Stone. (Bulletin No. 107, pp. 12.)

An outline of studies pursued in the School of Agriculture of Purdue University, with notes on the facilities of the institution for the pursuit of agricultural education and investigation.

Soy Beans, Middlings, and Tankage as Supplemental Feeds in Pork Production. By J. H. Skinner. (Bulletin No. 108, pp. 15–32, figs. 4.)

The results of an experiment in pork production conducted at the station in 1904 are reported in this bulletin.

IOWA STATION, Ames, C. F. Curtiss, Director.

Experiment in Beef Production. By W. J. Kennedy et al. (Bulletin No. 81, pp. 337–372, figs. 25.)

The results of a year's feeding test with steers of beef and dairy type, including the slaughter test on the same animals conducted in January, 1904, and a meat demonstration by Mr. John Gosling, are fully described and illustrated.

The Principal Soil Areas of Iowa. By W. H. Stevenson, G. I. Christie, and O. W. Willcox. (Bulletin No. 82, pp. 373–394, figs. 3, map 1.)

This bulletin classifies the soils of Iowa, defines the principal areas as they are now known to exist, and discusses some of the questions which are believed to need detailed study in the laboratory and in the field.

Quack and Wheat Grasses. Some Soil-Binding Grasses of Iowa. By L. H. Pammel. (Bulletin No. 83, pp. 397–421, figs. 9.)

Descriptive and botanical notes are given on the quack and wheat grasses of Iowa, and the value of these grasses for forage and soil-binding purposes is discussed.

The Cedar Apple Fungi and Apple Rust in Iowa. By L. H. Pammel. (Bulletin No. 84, pp. 36, figs. 11.)

This bulletin gives descriptive and biological notes on these diseases, reports the results of inoculation experiments, and suggests methods of treatment.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Kansas Mammals in their Relation to Agriculture. By D. E. Lantz. (Bulletin No. 129, pp. 331–404, pl. 1, fig. 1.)

This bulletin contains a list of Kansas mammals and gives a report on their food habits and economic relations. Notes are also given on the destruction of noxious mammals by means of poisons and other devices.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Analyses of Commercial Fertilizers. By M. A. Scovell et al. (Bulletin No. 117, pp. 87–171.)

The results of analyses of 630 samples of fertilizers examined in compliance with the State fertilizer law are reported.

Corn.—Field Tests. By J. N. Harper. (Bulletin No. 118, pp. 19, pls. 13.)

The results of variety tests of corn, with brief descriptive notes of varieties tested, are reported in this bulletin.

Labels on Adulterated and Imitation Foods. By R. M. Allen. (Bulletin No. 119, pp. 23–41.)

Illustrations and explanations of labels secured from various food products sold under the provisions of the pure-food laws of Kentucky.

LOUISIANA STATIONS, Audubon Park, New Orleans, W. R. Dodson, Director.

Producing and Marketing Truck. By D. N. Barrow. The Canning Business. By E. J. Watson. (Bulletin No. 81, 2. ser., pp. 36, pls. 2.)

This bulletin gives the results of experiments in the production and marketing of fruits and vegetables, and in canning fruits and vegetables on a small scale at the North Louisiana Experiment Station.

The Texas Fever Cattle Tick Situation and The Eradication of the Tick by a Pasture Rotation System. By H. A. Morgan. (Bulletin No. 82, 2. ser., pp. 15.)

This bulletin describes a simple and practical plan of getting rid of the Texas fever cattle tick "without the use of dips or chemicals of any kind."

Results of Further Experiment with Nodule-Disease of the Intestines of Sheep. "Bare-Lot" Method of Raising Lambs. By W. H. Dalrymple. (Bulletin No. 83, pp. 16, figs. 4.)

The results of the station's experiments are reported.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 16.)

This contains the organization lists of the stations, a brief financial statement, and a report by the director reviewing the work of the stations during the year.

MAINE STATION, Orono, C. D. Woods, Director.

Food Inspection. By C. D. Woods and L. H. Merrill. (Bulletin No. 116, pp. 77–92.)

"This bulletin contains the text of the pure-food law enacted in 1905, and the standards of purity adopted for Maine."

Poultry Experiments. By G. W. Gowell. (Bulletin No. 117, pp. 93–116.)

"This bulletin contains an account of investigations in breeding poultry for egg production, the methods employed in the selection of breeding stock, and detailed accounts of the methods of feeding hens and chickens."

MARYLAND STATION, College Park, H. J. Patterson, Director.

The Wild Legumes of Maryland and Their Utilization. By J. B. S. Norton and E. P. Walls. (Bulletin No. 100, pp. 97–124, pl. 1, figs. 17.)

This bulletin furnishes a list of the leguminous plants found wild in Maryland, shows the localities and kinds of soil and surroundings where they grow best, and indicates the ways in which they may be utilized, with suggestions as to the possible improvement of the more valuable species.

Common Injurious and Beneficial Insects of Maryland. By T. B. Symons. (Bulletin No. 101, pp. 125–204, figs. 52.)

This bulletin describes the entomological exhibit of the Maryland Experiment Station, its aim being to show the more injurious forms of insects in the State, with brief mention of the best-known remedies for their control.

Leucocytes in Milk and Their Significance. By C. F. Doane. (Bulletin No. 102, pp. 205–223.)

This bulletin describes the old and the new method of determining the number of leucocytes in milk, gives the results of tests made with the station herd in comparing the methods, records the number of leucocytes found by the new method in the milk of 102 cows, and discusses the relation of the number of leucocytes to the presence of fibrin in the milk as an indication of disease in the udder.

Method of Tobacco Seed Selection. By W. W. Cobey. (Bulletin No. 103, pp. 225–235, figs. 4.)

The method of selecting the tobacco plant and caring for the seed, as practiced by the Bureau of Plant Industry of this Department, is reported and recommended to tobacco growers in Maryland.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Acting Director.

Analyses of Fertilizers. By C. A. Goessmann. (Bulletin No. 103, pp. 20.)

In addition to reporting analyses of manurial substances forwarded to the station for examination, this bulletin gives directions for sampling materials to be forwarded for analysis, furnishes instructions to manufacturers, importers, agents, and sellers of commercial fertilizers, and discusses the trade values of fertilizing ingredients for 1905.

Analyses of Fertilizers. By C. A. Goessmann. (Bulletin No. 104, pp. 28.)

In addition to reporting analyses of manurial substances forwarded to the station for examination, this bulletin gives the market values of fertilizing ingredients and analyses of licensed fertilizers collected in the general markets during 1905.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 198, pp. 4.)

This is a summary for June, 1905.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 199, pp. 4.)

This is a summary for July, 1905.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Alfalfa in Michigan. By C. D. Smith. (Bulletin No. 225, pp. 135–148, figs. 2.)

"A study of the work accomplished with alfalfa and the lessons to be drawn from the many tests on the station plats are reported in this bulletin."

Investigation Regarding Succulence. By F. W. Robison. (Special Bulletin No. 32, pp. 15.)

The results of feeding experiments at the station with two heifers during the winter of 1902–3 to determine the effect of succulence on metabolism and on the various factors of digestibility are reported in this bulletin.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Winter Wheat. By T. L. Lyon and A. Keyser. (Bulletin No. 89, pp. 52, figs. 2.)

This bulletin, which gives the results of cooperative experiments with this Department, treats of variety tests of winter wheat, of the nature and causes of many wheat troubles, and of the effect of good and poor seed and good and poor tillage. Chemical analyses of the varieties of wheat grown are also reported.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Annual Report, 1904. (Annual Report, 1904, pp. XIX+652, pls. 45, figs. 8.)

This report gives the organization lists of the stations, a financial statement for the year ended October 31, 1904, a report of the director summarizing the work of the stations, and reports by the heads of departments and special articles on fertilizers, feeding stuffs, agricultural lime, investigations relative to the use of nitrogenous materials, soil bacteriological studies, climatic conditions and greenhouse and plat experiments with various vegetables and fruits, the culture and management of soiling crops and forage plants, feeding experiments, dairy herd records, experiments in the artificial rearing of oysters, breeding experiments with vegetables, weeds, and flowers, fungi as related to weather, notes upon winter injury to plants and upon the weather of the growing season, a list of seedsmen who sent seeds to the station, notes on various insects prevalent during the year, record of the experiment orchard, and notes on insecticides and fungicides.

NEW MEXICO STATION, Mesilla Park, L. Foster, Director.

Soil Moisture Investigations for the Season of 1904. By J. D. Tinsley and J. J. Vernon. (Bulletin No. 54, pp. 27, figs. 3, dgm. 1.)

This bulletin embraces the results of cooperative experiments between the New Mexico Departments of Agriculture and Soils for the season of 1904.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

The Apple Industry of Wayne County, New York. By G. F. Warren. Geology of Wayne County, New York. By W. E. McCourt. (Bulletin No. 226, pp. 227–410, figs. 116.)

The topics discussed in Part I of this bulletin are: The magnitude of the apple industry; tillage; fertilization; pruning; spraying; renovating an apple orchard in western New York, by C. Bues; number of trees per acre and distance between trees; age of the orchards; soils and soil problems; elevations and exposures; a comparison of rented orchards with those managed by the owner; varieties; enemies of the apple; and yields, markets, and prices. Part II deals with the topography, stratigraphy, climate, geological history, and soil types of the region surveyed.

Quality in Potatoes. By J. W. Gilmore. (Bulletin No. 230, pp. 503–525, figs. 12.)

"The scope of this bulletin is a study of some of the factors in the growth and development of potatoes which influence their culinary quality, special attention being given to their texture when boiled in water."

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Experiments in Clover Growing. Trials with Alfalfa. By J. H. Shepperd. (Bulletin No. 65, pp. 543–556, pls. 4.)

The results of the station's experience with these crops for a number of years are reported.

Fifteenth Annual Report, 1904. (Annual Report, 1904, Pt. I, pp. 183, figs. 18.)

This report contains a review by the director of the station work during the year, summary accounts of the work in the different departments, a report of the experiments conducted at the Edgeley Sub-Experiment Station, and a financial statement for the fiscal year ended June 30, 1904.

OHIO STATION, Wooster, C. E. Thorne, Director.

Experiments with Winter Wheat. By C. G. Williams. (Bulletin No. 165, pp. 37–65, figs. 11.)

This bulletin reports "experiments with a number of different varieties of winter wheat, grown at the station during the last thirteen years, giving attention to comparative yield in bushels per acre; grade or quality of grain as shown by weight per bushel; resistance to rust; per cent of protein and the factors having a bearing upon protein content; milling and baking quality; the scoring of varieties; cultural work in thick and thin, and early and late seeding; and methods of improving the yield and quality of our best varieties of wheat by selection."

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Wheat Growing. By F. C. Burtis and L. A. Moorhouse. (Bulletin No. 65, pp. 35.)

This bulletin gives the results of experiments with wheat for the years 1901 to 1904, inclusive, with general notes on wheat culture throughout the Territory.

The Water Supply. By L. L. Lewis et al. (Bulletin No. 66, pp. 26, figs. 4.)

This bulletin discusses the following topics: Bacteriological examination of water from ponds, tanks, and cisterns; a study of a few representative sources of drinking water; building the pond, and building the cistern.

Miscellaneous Water Analyses. By A. G. Ford. (Bulletin No. 67, pp. 18.)

In this bulletin organic and mineral analyses are reported of 126 samples of water from wells, springs, rivers, creeks, and cisterns which were sent in to the station during the past five years.

Pennsylvania Station, State College, H. P. Armsby, Director.

Relative Values of Feeding Stuffs. By H. P. Armsby. (Bulletin No. 71, pp. 16.)

This bulletin contains the results of experiments, made in cooperation with the Bureau of Animal Industry of this Department, in which the values of certain feeding stuffs for maintenance and for fattening were determined by means of the respiration calorimeter.

Porto Rico Station, Mayaguez, D. W. May, Special Agent in Charge.

The Yautias, or Taniers, of Porto Rico. By O. W. Barrett. (Bulletin No. 6, pp. 27, pls. 4.)

This bulletin illustrates and describes the botanical features of the yautia plant, and gives an account of its geographical distribution, varieties, culture, harvesting, diseases, composition, uses, and industrial prospects.

Rhode Island Station, Kingston, H. J. Wheeler, Director.

Commercial Feeding Stuffs. By H. J. Wheeler et al. (Bulletin No. 105, pp. 95–107.)

"This bulletin contains the results of the examination of such commercial feeding stuffs as were found on sale in Rhode Island during the winter of 1904 and 1905."

South Dakota Station, Brookings, J. W. Wilson, Director.

Macaroni Wheat. J. H. Shepard. (Bulletin No. 92, pp. 39, figs. 4.)

Notes are given on the origin of the different varieties of wheat, and the results of tests made to determine the milling and chemical characteristics of macaroni wheat and its adaptation for making bread and macaroni are reported.

Plums in South Dakota. By N. E. Hansen. (Bulletin No. 93, pp. 88, pls. 16.)

This bulletin gives a classification of the plums of South Dakota, and discusses such topics as their culinary uses, hardy *v.* tender stock, and the propagation, cultivation, marketing, and breeding of plums. Many of the varieties of plums are illustrated.

Tennessee Station, Knoxville, H. A. Morgan, Acting Director.

Texas Fever Cattle Tick: Pasture Methods of Eradication. By H. A. Morgan. (Bulletin Vol. XVIII, No. 1, pp. 10.)

This is a brief account of the life history and habits of the Texas fever cattle tick (*Boophilus annulatus*), with suggestions as to the best methods of eradicating the pest. See also Louisiana Sta. Bul. 82, 2 ser.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 93–107, figs. 2.)

This includes the organization list of the station, reports of the director and heads of departments, a list of publications issued by the station and of those available for distribution, and a report of the treasurer for the fiscal year ended June 30, 1904.

Utah Station, Logan, P. A. Yoder, Director.

Poultry Experiments. By J. Dryden. (Bulletin No. 92, pp. 115–197, pls. 18.)

This bulletin reports experiments extending over several years on the following subjects: The egg-type in hens, breeding to increase egg yield, cost and profit of egg production, weight and cost of food eaten, the value of exercise for the laying hen, the relative value of different breeds, the most profitable age of the

hen, the relative value of different forms of animal food, the value of fat in poultry foods, feeding color into the egg, incubator experiments, tests of evaporation of eggs during incubation, tests of carbonic acid gas in incubators and under hens, action of carbonic acid gas on egg shells, growing ducklings, and fattening turkeys.

Memoranda of Plans for Arid Farm Investigations. (Circular No. 3, pp. 29, dgms. 6.)

This circular contains the plans for carrying out investigations in growing useful crops without irrigation on six farms in various parts of the State in accordance with an act of the Utah legislature of 1905.

Memoranda of Plans for Irrigation Investigations. (Circular No. 4, pp. 21, dgms. 2.)

This circular gives instructions and regulations for carrying out irrigation investigations in cooperation with this Office.

VERMONT STATION, Burlington, J. L. Hills, Director.

Commercial Feeding Stuffs. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 109, pp. 8.)

The results of the inspection of commercial feeding stuffs in 1904 are reported.

Commercial Fertilizers. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 116, pp. 143–244.)

This bulletin gives the results of fertilizer inspection under provisions of the State law, with a discussion of the quantity and quality of plant food furnished, the relation between selling price and valuation, and the use of commercial fertilizers. A list is given with tabulated analyses of the fertilizers sampled by the station.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 365–587, pls. 4, figs. 4.)

This contains the organization list of the station, a financial statement for the year ended June 30, 1904, a report of the director, brief abstracts of the bulletins issued during the year, reports of the heads of departments covering a wide range of station work, an article on dairy feeding, a record of the station dairy herd, and an appendix which includes tabular summaries of the results of purity and germination tests of samples of grass and forage plant seeds and condensed data pertaining to article on feeding trials with cows.

WASHINGTON STATION, Pullman, E. A. Bryan, Director.

Some Notes Concerning Halphen's Test for Cotton-Seed Oil. Reaction of Lard from Cotton-Seed Meal-Fed Hogs with Halphen's Reagent. Effects of Feeding Cotton-Seed Meal upon the Health of Animals. By E. Fulmer. (Bulletin No. 67, pp. 42.)

The results of investigations made regarding these questions are reported in detail.

The Wormy Apple. By A. L. Melander. (Bulletin No. 68, pp. 16, figs. 6.)

Brief notes are given on the habits and life history of the codling moth, with suggestions for combating the pest.

Preliminary Report on the Codling Moth in the Yakima Valley. By E. Jenne. (Bulletin No. 69, pp. 16, figs. 3.)

This includes notes on the habits and life history of this pest and on the relation of its life history to the proper time of spraying.

The Powdery Mildews of Washington. By W. H. Lawrence. (Bulletin No. 70, pp. 16, fig. 1.)

This bulletin gives descriptions of the species and varieties of powdery mil-

dews to occur in the State of Washington, accompanied by a description of the family and genera, and generic and specific keys.

West Virginia Station, Morgantown, J. H. Stewart, Director.

Diseases of Melons and Cucumbers during 1903 and 1904. By J. L. Sheldon. Bulletin No. 94, pp. 121–138, pls. 6.)

Notes are given on the nature, effects, and methods of treatment of a few parasitic diseases.

A Report on Plant Diseases of the State. By J. L. Sheldon. (Bulletin No. 96, pp. 71–99, pls. 6.)

Notes are given on the prevalence of diseases attacking fruits, vegetables, and flowers throughout the State in 1904.

Wyoming Station, Laramie, B. C. Buffum, Director.

Wyoming Forage Plants and Their Chemical Composition—Studies No. 1. By H. G. Knight, F. E. Hepner, and A. Nelson. (Bulletin No. 65, pp. 52, pl. 1, figs. 18.)

This bulletin gives descriptions and illustrations, with chemical analyses, of the more important native and introduced forage plants of Wyoming, and the value of these plants to stock raising in the State is discussed.

Irrigation Work on the North Platte River. By B. P. Fleming. (Bulletin No. 66, pp. 24, figs. 4.)

The investigations reported in this bulletin "include determinations of the amount of water used per acre in already irrigated districts along the river, measurements of seepage from canals in use, and other observations on the use, distribution, and value of water."

○

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING SEPTEMBER AND OCTOBER, 1905.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama Tuskegee Station, Tuskegee, G. W. Carver, Director.

Cotton Growing on Sandy Upland Soils. By G. W. Carver. (Bulletin No. 7, pp. 11, figs. 2.)

This bulletin gives the results of four years' experiments with methods of culture and manuring to increase the productive capacity of poor, light, sandy soils. Recommendations are made regarding preparation of the land, selection of seed, cultivation, and manuring of cotton.

Arizona Station, Tucson, R. H. Forbes, Director.

Timely Hints for Farmers. (Bulletin No. 51, pp. 523–557, figs. 5.)

A collection of short popular articles issued separately from October 1, 1903, to January 30, 1905. The subjects discussed include bee products in Arizona, sugar-beet culture, some practical suggestions concerning seed germination, potato culture, singed cacti as a forage, pickling olives for home use, and pear culture.

California Station, Berkeley, E. J. Wickson. Acting Director.

Observations on Some Vine Diseases in Sonoma County, California. By O. Butler. (Bulletin No. 168, pp. 29, pl. 1, figs. 5.)

The red-leaf disease, grape shrivel, and root rot are described, with accounts of spraying experiments in case of the first two at Sonoma and general suggestions regarding preventive and remedial measures for all three.

Colorado Station, Fort Collins, L. G. Carpenter, Director.

The Value of Sugar-beet Pulp, Alfalfa Hay, and Ground Corn in Fattening Steers. By W. L. Carlyle and C. J. Griffith. (Bulletin No. 102, pp. 12.)

This bulletin gives the results of an experiment with 48 2-year-old steers, extending over one hundred and ten days, undertaken to further study the question of the suitability for beef production of sugar-beet pulp fed with alfalfa hay and farm grains.

Georgia Station, Experiment, R. J. Redding, Director.

Japan and Hybrid Plums. By H. N. Starnes. (Bulletin No. 68, pp. 38, pls. 8, figs. 34.)

This bulletin supplements Bulletin 67 of the station, which dealt with native and European plums. It is confined almost entirely to a consideration of varieties.

Illinois Station, Urbana, E. Davenport, Director.

Comparison of Methods of Preparing Corn and Clover Hay for Fattening Steers. By H. W. Mumford. (Bulletin No. 103, pp. 41–93, pls. 11.)

This bulletin reports the results of experiments extending over a period of one hundred and eighty-six days with 130 2-year-old high-grade Shorthorn steers to test the relative profitableness of different methods of preparing and feeding corn and clover hay to fattening cattle, and also to secure data as to whether the cattle feeder can afford to buy nitrogenous concentrated feeds to supplement corn when an abundant supply of clover hay or other nitrogenous roughage is available.

Soil Treatment for Wheat on the Poorer Lands of the Illinois Wheat Belt. By C. G. Hopkins. (Circular No. 97, pp. 22.)

This circular describes the methods used on four soils located in three different counties in southern Illinois, by which the averge wheat yield was increased from 9 to 29 bushels per acre. The methods included crop rotation, the liberal use of leguminous plants, and application of lime or ground limestone and steamed bone meal.

Present Methods of Beef Production. By H. W. Mumford and L. D. Hall. (Circular No. 98, pp. 15, figs. 9.)

This is the sixth paper on this subject and summarizes the experience of a large number of Illinois cattle feeders with reference to feed lots and shelters.

Louisiana Stations, Audubon Park, New Orleans, W. R. Dodson, Director.

Analyses of Commercial Fertilizers and Paris Green. By W. C. Stubbs and C. H. O'Rourke. (Bulletin No. 80, 2. ser., pp. 104.)

This bulletin gives the results of inspection of fertilizers and Paris green on sale in Louisiana during the season of 1904, as well as the text of the laws under which the inspection is made, the law providing for the inspection of Paris green being a recent enactment (July 6, 1904).

Maine Station, Orono, C. D. Woods, Director.

Cereal Foods. By L. H. Merrill. (Bulletin No. 118, pp. 117–135.)

This bulletin contains a general discussion of the cereal breakfast foods and the results of digestion experiments made with them at the Maine Station in cooperation with this Office.

Maryland Station, College Park, H. J. Patterson, Director.

Tests of Materials for Bedding Cows. By C. F. Doane. (Bulletin No. 104, pp. 9.)

"In the work recorded in this bulletin a number of available materials were compared for quantity required to keep the animals clean, and for absorption powers. Wheat straw, uncut, was used as the standard, and with this was compared cut wheat straw, cut corn stover, sawdust, and fine shavings from a planing mill. With another lot of cows and with the station horses a comparison was made between wheat straw and green rye straw, both cut and uncut."

Massachusetts Station, Amherst, W. P. Brooks, Acting Director.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 200, pp. 4.)

This is a summary for August, 1905.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 201, pp. 4.)

This is a summary for September, 1905.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

The Work at the Substations. By L. R. Taft and C. D. Smith. (Bulletin No. 226, pp. 151–164, figs. 6.)

This is a review of Special Bulletins 27, 28, 30, and 31 of the station, and summarizes the work at the South Haven and Upper Peninsular substations during 1903 and 1904.

Legumes Other Than Alfalfa. By C. D. Smith. (Bulletin No. 227, pp. 167–184.)

Brief accounts are given of tests on small plats of "white lupines, sand lupines, gorse, sweet clover, fenugreek, kidney vetch, goat's rue, *Astragalus sinensis*, serradella, sulla, sainfoin, peanuts, goobers, giant beggar weed, Japan clover, *Cicer arietinum*, lentils, lathyrus, and the vetches." The value of the different crops for Michigan conditions is discussed.

The Discussion of the Milk Problem from the Standpoint of Production. By C. E. Marshall. (Bulletin No. 228, pp. 185–195.)

This bulletin discusses briefly the economy of milk production and means of producing milk of high quality and purity.

A Popular Review of Special Bulletin No. 33 on "The Associative Action of Bacteria in the Souring of Milk." By C. E. Marshall. (Bulletin No. 229, pp. 197–201.)

Some Bacterial Diseases of Plants Prevalent in Michigan. By W. G. Sackett. (Bulletin No. 230, pp. 205–220, figs. 6.)

Popular accounts are given of the nature and treatment of pear blight, bacteriosis of beans, black rot of cabbage, wilt of the cucumber, muskmelon, and squash, soft rot of the sugar beet, and blight of the Irish potato, tomato, and eggplant.

Fertilizer Analyses. By A. J. Patten. (Bulletin No. 232, pp. 23.)

This bulletin gives the text of the State fertilizer law, a list of dealers in fertilizers in the State, and analyses of 123 samples examined during 1905.

MISSISSIPPI STATION, Agricultural College, W. L. Hutchinson, Director.

Inspection and Analyses of Commercial Fertilizers on Sale in the State. By W. F. Hand et al. (Bulletin No. 85, pp. 31.)

Analyses and valuations of 280 samples of fertilizers examined during the season of 1903–4 are reported, with brief notes on the general results of inspection and on valuation, and the text of the State fertilizer law as amended in 1904, to provide for the branding of fertilizers with reference to their grade.

The Underground Waters of Mississippi—A Preliminary Report. By W. N. Logan and W. R. Perkins. (Bulletin No. 89, pp. 112, figs. 23.)

This is a preliminary report on the underground waters of Mississippi, embodying "present knowledge of the depth at which potable underground waters may be obtained in different parts of the State; the known and probable artesian areas of the State; and the chemical properties of the underground waters in the various parts of the State."

Inspection and Analyses of Commercial Fertilizers on Sale in the State. By W. F. Hand et al. (Bulletin No. 91, pp. 54.)

This bulletin gives tables of analyses of fertilizers inspected during the season of 1904–5, being the fourth publication of analyses of samples of fertilizers drawn during that season.

MONTANA STATION, Bozeman, F. B. Linfield, Director.

Eleventh Annual Report, 1904. (Annual Report, 1904, pp. 183–278, pls. 7.)

Brief summary accounts are given of the operations of the station in its different departments during the year ended November 30, 1904. Special atten-

tion is given in the report to additions to equipment, especially farm buildings, and a record of the discharge of the principal rivers of the State is also included.

NEVADA STATION, Reno, N. E. Wilson, Acting Director.

An Account of Some Features of the Climate of Reno, Nevada. By S. B. Doten. (Bulletin No. 59, pp. 21, pls. 4.)

Meteorological observations which have been carried on at the Nevada State University since 1888 are summarized and discussed in their bearing on the climatic characteristics of the region.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Late Fall Spraying for the San José or Pernicious Scale. By J. B. Smith. (Bulletin No. 186, pp. 14, figs. 6.)

This bulletin describes the life history of the pernicious scale and reports a series of experiments with fall and winter applications of a great variety of insecticides for this pest, which indicate that late fall spraying "while the scales are yet active and before the trees are really dormant" is the most effective.

Analyses and Valuations of Commercial Fertilizers. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 187, pp. 21.)

Analyses of 232 samples of fertilizers, representing 96 manufacturers, are reported.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

An Apple Orchard Survey of Orleans County. By G. F. Warren. (Bulletin No. 229, pp. 457–499, figs. 16.)

"This bulletin is the second of a suggested series of reports on the actual status of various fruit-growing industries in the counties of New York State [giving] a survey of the business as conducted by the farmers themselves." The first dealing with Wayne County was published as Bulletin 226 of the station.

Second Report on the Forcing of Strawberries. Notes on the Forcing of Tomatoes, Cucumbers, and Melons. By C. E. Hunn and J. Craig. (Bulletin No 231, pp. 29, figs. 16.)

An account is here given of a continuation of experiments with strawberries previously reported on in Bulletin 134 of the station, the experiments here reported being confined to "the varieties best adapted to forcing, the length of time required to mature a crop from the time of bringing in the plants from the cold frame, the results of temperature on the crop, economy in handling of the plants." Notes are also given on the forcing of tomatoes, cucumbers, and melons.

Experiments on the Influence of Fertilizers upon the Yield of Timothy Hay when Grown on Dunkirk Clay Loam in Tompkins County, N. Y. By J. W. Gilmore and S. Fraser. (Bulletin No. 232, pp. 33–46, figs. 5.)

An account is given of the experiments to study the influence of fertilizers on the yield of timothy sown with oats on soil which had been treated the previous fall with commercial fertilizers, barnyard manure, and lime, the timothy being treated the spring after the oats were harvested with commercial fertilizers only.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Inspection of Feeding Stuffs. (Bulletin No. 268, pp. 285–322.)

"In this bulletin will be found a list of the brands of commercial feeding stuffs which have been licensed for sale in the State of New York up to September 1, 1905, and the results of the analyses of samples of such feeding stuffs."

NORTH CAROLINA STATION, Raleigh, B. W. Kilgore, Director.

The Formation of Nitrates in the Soil. By W. A. Withers. (Bulletin No. 190, pp. 8.)

The sources of nitrogen and the conditions favoring nitrification are discussed, and laboratory experiments to determine the rate of nitrification of sulphate of ammonia, dried blood, dried fish, tankage, bone, cotton-seed meal, and barnyard manure in different kinds of soil are reported.

Egg Preservation. By J. S. Jeffrey. (Bulletin No. 191, pp. 11–17.)

The results of experiments at other stations with different egg preservatives are briefly reviewed, and comparative tests by the author of water glass, lime and salt solution, salicylic acid alone or in combination with cotton-seed oil and alcohol, paraffin, collodium, and gum arabic are reported.

Farm Dairying. By J. C. Kendall. (Bulletin No. 192, pp. 21–48, figs. 9.)

A general discussion of this subject in its relation to North Carolina conditions, including a consideration of present and future prospects, methods of production and handling of milk and cream, butter making, cheese making, marketing of the products, and the equipment required for a dairy of 20 cows.

Twenty-seventh Annual Report, 1904. (Annual Report, 1904, pp. 127, figs. 131.)

This report contains the usual administrative reports and documents giving a summary of the work and expenditures of the station during the year, as well as a special paper on the availability of potash and phosphoric acid in soils. Four regular bulletins, Nos. 186–189, and five press bulletins issued during the year are incorporated in the report.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Water for Domestic Purposes in North Dakota. By E. F. Ladd. Bulletin No. 66, pp. 559–571.)

This bulletin discusses the standard of purity for potable waters, explains the significance of the results of analysis, and reports quantitative determinations of total, volatile, and nonvolatile solids, and chlorids, and qualitative tests for carbonates, sulphates, lime, magnesia, and soda in 160 samples of water from different parts of North Dakota.

OHIO STATION, Wooster, C. E. Thorne, Director.

Plums for Home and Market. By W. J. Green and F. H. Ballou. (Bulletin No. 162, pp. 229–258, figs. 19.)

A discussion based on the observations and experiments of the station is given of a succession of choice varieties covering the entire season, with brief notes on planting, culture, and pruning.

Pedigreed Seed Corn. By C. G. Williams. (Circular No. 42, pp. 11, dgm. 1.)

This is a paper read at a meeting of Ohio plant breeders held at the experiment station June 22, 1905, in which the "ear-to-row" system of selecting and breeding corn is described and its adaptability to farm purposes is explained.

Score Card for Dent Corn. (Circular No. 43, pp. 3.)

A score card for judging Dent corn is given and explained.

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Fourteenth Annual Report, 1905. (Annual Report, 1905, pp. 66.)

This report gives the usual summaries of work and expenditures of the station during the year, as well as an account of the work and progress of the college with which it is connected, and reprints of some of the articles issued during the year as press bulletins.

PENNSYLVANIA STATION, State College. H. P. Armsby, Director.

Experiments in Growing Sumatra Tobacco under Shelter Tent, 1903. By W. Frear. (Bulletin No. 72, pp. 11.)

This is an account of experiments begun in 1902 in cooperation with the Lancaster County Tobacco Growers' Society "to test the possibilities of developing upon Lancaster County soil, and in the climatic conditions of that locality, a good type of Sumatra wrapper leaf, by aid of a shelter tent." The two experiments reported were made in 1903, one on Donegal gravelly loam, the other on Penn sandy loam soil.

Distillers' Dried Grains *v.* Cotton-seed Meal as a Source of Protein. By H. P. Armsby and A. K. Risser. (Bulletin No. 73, pp. 11.)

The results of comparative tests of these two feeds with 12 cows during three periods of four weeks each are reported, the feeds being studied with reference to cost and the amount and quality of milk and butter produced.

PORTO RICO STATION, Mayaguez, D. W. May, Special Agent in Charge.

Investigaciones sobre el Tabaco en Puerto Rico durante 1903–4. Por J. van Leenhoff, jr. (Boletín No. 5, pp. 47, lám. 5, fig. 1.)

The English edition of this bulletin has already been noted.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Concerning the Agricultural Value of Sodium Salts. By H. J. Wheeler and G. E. Adams. (Bulletin No. 106, pp. 111–153, dgms. 11.)

This bulletin contains essentially the results of a continuation during 1902 on 48 sixtieth-acre plats of experiments with a variety of crops to determine the value of soda as a substitute for potash in plant nutrition, which have been carried on since 1894 as were last reported in Bulletin 104 of this station.

The Influence of Soil Treatment in Greenhouse Culture. By H. J. Wheeler and G. E. Adams. (Bulletin No. 107, pp. 157–167.)

The methods of manuring different sections of a greenhouse bench, each containing 1,400 pounds of subsoil, are described, and the results obtained in growing radishes, tomatoes, and cucumbers are briefly reported.

Analyses of Commercial Fertilizers. By H. J. Wheeler et al. (Bulletin No. 108, pp. 12.)

"This bulletin contains the results of such analyses of bone, tankage, and of ready-mixed potato fertilizers as have been found on sale in Rhode Island during the spring of 1905."

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

Analyses of Commercial Fertilizers. By M. Hardin. (Bulletin No. 115, pp. 30.)

This bulletin contains analyses of 522 samples of fertilizers collected during the season of 1904–5. "These analyses were published in 15 weekly bulletins issued and distributed during the months of February, March, April, and May." Eighty-four samples of cotton-seed meal, previously reported in Bulletin 105 of the station, are also included, and notes on valuation and explanations of terms used in fertilizer analysis are given.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Annual Report, 1905. (Annual Report, 1905, pp. 32.)

This includes a financial statement and summaries of the work of the different departments of the station during the fiscal year ended June 30, 1905.

WISCONSIN STATION, Madison, W. A. Henry, Director.

The Principles and Practice of Horse Breeding. By A. S. Alexander. (Bulletin No. 127, pp. 128, figs. 156.)

A very complete and well-illustrated discussion of this subject, prepared with a view to encouraging Wisconsin farmers and breeders to engage in the horse-breeding industry, it being claimed that the conditions in that State are especially "favorable for the production of active, sound, healthy, and hardy horses." The bulletin also includes special articles on Horses for City Teaming, by J. G. Boyd; Draft Horse Breeding in Wisconsin, by H. A. Briggs; Fitting Horses for Show, by A. Galbraith; Care and Feeding of Draft Stallions During the Breeding Season, by A. Galbraith; Breeding Coach Horses, by A. R. Ives; The General Purpose Horse, by G. McKerrow; Feeding Farm Work Horses, by J. Z. McLay; Developing Draft Foals and Care of Brood Mares, by R. B. Ogilvie; and The Management and Care of Stallions, by F. C. Warren; a complete list of American and foreign stud books certified to and recognized by this Department; and laws pertaining to horse breeding in Wisconsin.

A Swiss Cheese Trouble Caused by a Gas-forming Yeast. By H. L. Russell and E. G. Hastings. (Bulletin No. 128, pp. 26, figs. 10.)

A bacteriological investigation of a severe outbreak of gassy fermentations in a Swiss cheese factory in Wisconsin is reported, and practical suggestions regarding means of overcoming abnormal fermentations are given. A German translation of the bulletin is also included.

Some Creamery Problems. By E. H. Farrington. (Bulletin No. 129, pp. 26, figs. 4.)

The problems discussed in this bulletin are "(1) the difference in overrun or yield of butter when it is made from milk and from cream testing different per cents of fat, and (2) the equitable payment of dividends when both milk and cream are received at the same factory." The bulletin also discusses the care of cream at the farm and cleaning test bottles, and describes a bottle for the alkaline tablet solution used in testing the acidity of milk and cream.

O

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING NOVEMBER AND DECEMBER, 1905.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Glanders of Horses. By R. R. Dinwiddie. (Bulletin No. 87, pp. 63–76.)

This is a compilation, based in part upon observations by the station veterinarian, of information relating to the prevalence, nature, and means of eradication or control of this disease.

Food Adulteration in Arkansas. By J. H. Norton. (Bulletin No. 88, pp. 77–118.)

This bulletin briefly refers to investigations relating to foods in the United States and reports examinations of a large number of food materials collected in the open market in Arkansas. An article on the Physiological Action of Preservative Drugs Found in Food, by R. R. Dinwiddie, is also included.

Eighteenth Annual Report, 1905. (Annual Report, 1905, pp. VIII+107–129+76.)

This report consists of a financial statement and reprints of Bulletins 83–87 of the station.

Delaware Station, Newark, A. T. Neale, Director.

The Action of Formaldehyde in the Preservation of Milk. By F. D. Chester and T. R. Brown. (Bulletin No. 71, pp. 36, figs. 3.)

An account is given of investigations by the experiment station cooperating with the State bacteriological laboratory on the general effect of formaldehyde in retarding the souring of milk, the effect of different proportions of formaldehyde on the development of bacteria in milk, and the character of the bacterial flora in milk containing formaldehyde. The results of the work of other investigators on the antiseptic and physiological action of formaldehyde are briefly reviewed, and the practical application of the results of such investigations in the handling of milk is discussed.

Florida Station, Lake City, P. H. Rolfs, Director.

Insects of the Pecan. By H. A. Gossard. (Bulletin No. 79, pp. 281–318, pls. 7.)

Notes are given on the characteristics, life history, natural enemies, and treatment of pecan bud-moth (*Proteopteryx deludana*), pecan case-bearer (*Acrobasis nebullela*), budworms, *Catocala* spp., pecan-tree borer (*Sesia scitula*), walnut or pecan caterpillar (*Datana interrigma*), fall webworm (*Hyphantria cunea*), *Coleophora* sp., hickory-shuck worm (*Grapholitha caryana*), twig girdlers (*Oncideres cingulatus* and *O. texana*), oak pruner (*Elaphidion villosum*), live-oak root borer (*Mallodon melanopus*), hickory-nut weevil (*Balaninus*

caryæ), hickory-bark borer (*Scolytus quadrispinosus*), painted hickory borer (*Cyllene pictus*), white ant (*Termes flavipes*), cottony scale (*Pulvinaria innumerabilis*), and pecan Eulecanium. General practice in pecan orchards, spraying and spraying apparatus, and the outlook for pecan culture are also discussed.

Fertilizer Suggestions. By E. R. Flint. (Bulletin No. 81, pp. 365–390.)

This bulletin gives formulas and suggestions regarding the use of fertilizers on different crops compiled from experiments made at the Florida Station and at the stations of neighboring States.

HAWAII STATION, Honolulu, J. G. Smith, Special Agent in Charge.

Insect Enemies of Tobacco in Hawaii. By D. L. Van Dine. (Bulletin No. 10, pp. 16, figs. 6.)

Notes with methods of treatment are given on the following insects injurious to tobacco in Hawaii: Greasy cutworm (*Agrotis ypsilon*), tobacco flea-beetle (*Epitrix parvula*), tobacco splitworm (*Phthorimæa operculella*), false budworm (*Heliothis obsoleta*), tobacco hornworm (*Phlegethontius quinquemaculata*), Japanese rose beetle (*Adoretus umbrosus*), and the cigarette beetle (*Lasioderma serricorne*).

IDAHO STATION, Moscow, H. T. French, Director.

Trap Rocks of Palouse Region as Road Material, Part II. By C. N. Little and W. G. Turley. (Bulletin No. 50, pp. 16, figs. 2.)

This bulletin gives an account of a continuation of work described in Bulletin 45 of the station.

Alkali Conditions in the Payette Valley. By J. S. Burd. (Bulletin No. 51, pp. 20.)

This records a continuation of work on the alkali of the arid lands of southern Idaho previously reported in Bulletin 44 of the station. It deals mainly with the character and distribution of alkali in this valley.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Field Experiments and Observations on Insects Injurious to Indian Corn. By S. A. Forbes. (Bulletin No. 104, pp. 95–152, figs. 2.)

This bulletin records observations on injury to corn by the timothy billbugs (*Sphenophorus* sp.), field experiments on the corn root-aphis (*Aphis maidiradicis*), and field experiments for the protection of corn against chinch-bug injury, including barrier experiments with fluid insecticides and experiments with the gasoline blast lamp.

Sampling of Milk for Composite Tests of Individual Cows. By H. A. Hopper. (Circular No. 90, pp. 5, fig. 1.)

The purpose of this circular is to show how samples of milk should be taken and how a yearly test should be conducted, so that all unprofitable cows may be detected and removed from the herd.

Present Methods of Beef Production, III. By H. W. Mumford and L. D. Hall. (Circular No. 91, pp. 4.)

This is the third of a series of circulars based on replies received from 509 cattle feeders to a list of questions submitted on practical methods of beef production. This treats of hogs following cattle in the feed lot.

Present Methods of Beef Production, IV. By H. W. Mumford and L. D. Hall. (Circular No. 92, pp. 8.)

This is the fourth of the series noted above, and treats of cattle feeds and their preparation.

The Gist of Four Years' Soil Investigation in the Illinois Wheat Belt. By C. G. Hopkins, J. H. Pettit, and J. E. Readhimer. (Circular No. 99, pp. 4.)

The sources of supply of nitrogen, potassium, and phosphorus for wheat crops grown on the soils in this region are described, and the results of four years' experiments with different fertilizers showing a profit only in case of applications of commercial phosphates are briefly summarized.

The Gist of Four Years' Soil Investigation in the Illinois Corn Belt. By C. G. Hopkins, J. H. Pettit, and J. E. Readhimer. (Circular No. 100, pp. 4.)

The sources of supply of nitrogen, potassium, and phosphorus for corn crops grown on the soils in this region are described, and the results of four years' experiments with different fertilizers showing a profit only in case of applications of commercial phosphates are briefly summarized.

Eighteenth Annual Report, 1905. (Annual Report, 1905, pp. 13.)

This report contains a list of publications issued during the fiscal year, an outline of the principal lines of station work, a complete list of bulletins published from 1888 to 1905, including those available for distribution, and a financial statement for the fiscal year ended June 30, 1905.

INDIANA STATION, Lafayette, A. Goss, Director.

Examination of Horses for Soundness. By G. H. Roberts. (Bulletin No. 109, pp. 35–76, figs. 28.)

"The attempt in this brief bulletin is to give an outline for the systematic examination of the horse; to point out conditions that should be present in soundness, and the disease, vice, and defects that may be expected in going over the different parts. The object has been to make the description as plain and simple as possible, and free from unnecessary technical terms."

LOUISIANA STATIONS, Audubon Park, New Orleans, W. R. Dodson, Director.

Texas Fever. By W. H. Dalrymple. (Bulletin No. 84, pp. 32, pl. 1, map 1.)

The purpose of this bulletin is to supply in a succinct and practical form the demand for information on the subject of Texas fever which is constantly being made to the station. It is intended to take the place of previous publications of the station which have become exhausted.

MAINE STATION, Orono, C. D. Woods, Director.

Food Inspection. By C. D. Woods and L. H. Merrill. (Bulletin No. 119, pp. 137–152.)

This bulletin contains a report upon samples of baking powders and different kinds of vinegar collected in 1905.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Experiments with Fumigating Nursery Stock. By T. B. Symons and A. B. Gahan. (Bulletin No. 105, pp. 11–33, figs. 5.)

Experiments are reported in this bulletin which were undertaken for the purpose of demonstrating more fully "that there is no danger of injuring young trees by fumigation, where reasonable care is exercised in the operation." Results of experiments with 3,000 nursery trees, half of which were fumigated in the fall and half in spring, are reported.

The Influence of the Size of the Grain and the Germ of Corn upon the Plant. By E. P. Walls. (Bulletin No. 106, pp. 35–56.)

This bulletin reports in detail the results of experiments the object of which "was to obtain data from which to deduce a rule of practice in the selection of

seed corn, whether we should reject ears bearing kernels of small weight and small germs, or whether this discrimination is unnecessary."

1905 Spraying Experiments for the San José Scale. By T. B. Symons and A. B. Gahan. (Bulletin No. 107, pp. 57–62.)

This bulletin is a summary of the results of tests of several new spray mixtures which were undertaken with the hope of finding a more practical remedy than the present lime-sulphur-salt mixture and in order to give fruit growers practical information regarding these new preparations. Experiments on about 1,416 peach and apple trees are reported with the following mixtures: Kerosene limoid, lime-sulphur-salt mixtures, together with 4 patent insecticides.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Acting Director.

Tomatoes under Glass. Methods of Pruning Tomatoes. By G. E. Stone. (Bulletin No. 105, pp. 40, figs. 8.)

Methods of growing tomatoes under glass compiled from experiment station literature are briefly outlined, and experiments on the influence of methods of pruning on the growth of stems and fruit of tomatoes are reported.

Condimental Stock and Poultry Foods. By J. B. Lindsey. (Bulletin No. 106, pp. 24.)

Analyses of 65 samples of stock and poultry foods and condition powders are reported and discussed. A résumé of station experiments with such materials is given, and a demonstration experiment with a proprietary stock food compared with corn meal and wheat middlings is reported.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 202, pp. 4.)

This is a summary for October, 1905.

Meteorological Observations. By J. E. Ostrander and C. H. Chadwick. (Meteorological Bulletin No. 203, pp. 4.)

This is a summary for November, 1905.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Suggestions Concerning Legume Inoculation. By L. T. Clark. (Bulletin No. 231, pp. 223–230.)

The principal facts in the history of investigation of this subject are briefly noted. The practical value of soil inoculation is discussed, and methods of preparing and studying pure cultures of the organisms used in inoculation are described.

Extended Studies of the Associative Action of Bacteria in the Souring of Milk. By C. E. Marshall. (Special Bulletin No. 33, pp 23.)

An account is here given of a continuation of technical studies of the influence on the souring of milk of a particular micro-organism isolated from college dairy milk when associated with *Bacillus acidi lactici*.

MINNESOTA STATION, St. Anthony Park, St. Paul, W. M. Liggett, Director.

The Digestibility and Nutritive Value of Cottage Cheese, Rice, Peas, and Bacon. By H. Snyder. (Bulletin No. 92, pp. 259–275.)

This bulletin contains the results of five series of experiments carried on during the year 1904 with workingmen as subjects to determine the actual digestibility of bread, milk, rice, cottage cheese, bacon, peas, and sugar combined in various ways.

Twelfth Annual Report, 1904. (Annual Report, 1904, pp. XIII+31+246, pls. 50, figs. 149.)

This report consists of a financial statement for the year ended June 30, 1904, a brief summary by the director of the work in the different divisions of the station during the year, and reprints of Bulletins 83–86 of the station.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Cattle Feeding Experiments. By H. R. Smith. (Bulletin No. 90, pp. 24, figs. 6.)

An account is given in this bulletin of experiments with 50 range 2-year-old steers, mostly grade Shorthorns known in the stock yards as "hay feds," to determine the relative value of the various rough feeds available in Nebraska for supplementing corn in the fattening of steers.

Experiments with Corn. By T. L. Lyon. (Bulletin No. 91, pp. 35, figs. 15.)

This is a preliminary report on experiments which have been under way at the Nebraska Station during the past three years, including tests of varieties, studies of relation of size of ear to yield, thickness and depth of planting, tillering, increasing yields by selection of plants, cross breeding, selection of corn for high oil content, adaptation of corn to a new locality, and keeping seed corn.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

Two New Shade Tree Pests. By M. V. Slingerland. (Bulletin No. 233, pp. 49–62, figs. 8.)

Notes are given on the life history and habits of the European elm sawfly leaf-miner (*Kaliosysphinga ulmi*) and alder sawfly leaf-miner (*K. dohrnii*), which have recently been introduced in the United States. Remedial measures are also suggested.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Winter Injury to Fruit Trees. By H. J. Eustace. (Bulletin No. 269, pp. 323–343, pl. 1.)

An account is here given of observations and experiments made on trees injured by the severe weather of the winters of 1903 and 1904 in the Hudson River Valley, New York, the object being to obtain information which would enable orchardists to distinguish between trees fatally injured and those in which recovery was probable, as well as to adopt methods of treatment which would be most likely to bring about a speedy recovery.

The Quality of Commercial Cultures for Legumes. By H. A. Harding and M. J. Prucha. (Bulletin No. 270, pp. 345–385.)

This bulletin gives the results of bacteriological examinations in the laboratory of the New York State Station and in four other laboratories in different parts of the country of the inoculating material for legumes distributed by this Department and put on the market by commercial concerns.

The Apples of New York, Volume I. By S. A. Beach, N. O. Booth, and O. M. Taylor. (Annual Report, 1903, pt. 2, pp. XX+409, pls. 130, figs. 9.)

This report is the outgrowth of a distinctive line of work which has been carried on by the station since its organization. It deals with the origin and classification of the apple, history of apple culture in New York, definition of the term variety, local adaptation of varieties, and descriptions of winter varieties. A second volume dealing with early and fall varieties is in course of preparation.

OHIO STATION, Wooster, C. E. Thorne, Director.

Meteorological Summary—Press Bulletins—Index. (Bulletin No. 152, pp. 195–221.)

This bulletin contains a meteorological summary for 1903, by C. A. Patton, the text of the press bulletins issued during the year ended June 30, 1904, and an index of all publications issued during that year.

Winter Practice in Economic Zoology. By H. A. Gossard. (Bulletin No. 164, pp. 36, figs. 10.)

This is the first of a proposed series of manuals prepared for the use of the farmer and fruit grower, "which will briefly indicate the whereabouts and

stages of development of the more important farm, orchard, and garden pests during each of the four seasons of the year and suggest methods for destroying or controlling them." This first manual deals only with those species which are susceptible to winter treatment.

The Newer Strawberries. By W. J. Green and F. H. Ballou. (Bulletin No. 166, pp. 67–86, figs. 20.)

Notes are given on the results obtained with 50 new varieties of strawberries, including a tabulated report upon all the varieties which fruited at the station during the season of 1905. Many of the varieties are illustrated. Notes are also given on "pedigree strawberry plants."

Twenty-third Annual Report, 1904. (Annual Report, 1904, pp. XXV, pls. 4.)

This report contains obituary notices of F. Whittlesey, J. H. Brigham, and S. H. Ellis, former members of the board of control of the station, and J. F. Hickman, former agriculturist of the station; a financial statement for the year ended June 30, 1904; and summary accounts of the work of the station during the year.

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Soil Inoculation. By L. L. Lewis et al. (Bulletin No. 68, popular edition, pp. 9, fig. 1.)

This is a popular summary of the more important practical features of results of investigations on this subject reported in Bulletin No. 68 of the station.

Small Fruits. By O. M. Morris and J. F. Nicholson. (Bulletin No. 69, pp. 20.)

This bulletin describes the methods of cultivating small fruits practiced at the station and gives notes on varieties of blackberries, dewberries, raspberries, strawberries, gooseberries, and currants. Notes are also given on the diseases and insects which attack these fruits, and methods of treatment are suggested.

TENNESSEE STATION, Knoxville, H. A. Morgan, Director.

Small Fruits and Grapes. By C. A. Keffer. (Bulletin Vol. XVIII, No. 2, pp. 13–21, figs. 7.)

This bulletin summarizes the results of observations at the station on varieties, methods of culture, and fertilizing of strawberries, raspberries, blackberries, and grapes, and makes practical suggestions regarding the culture of these fruits.

WYOMING STATION, Laramie, B. C. Buffum, Director.

Duty of Water. By B. P. Fleming. (Bulletin No. 67, pp. 20.)

This is a summary of determinations of the amount of water actually used in the irrigation of crops on the station farm since 1893, with brief discussions of the water requirements of crops and methods of determination of duty of water and measurement of water.

Ration Experiments with Lambs, 1904–5. By G. E. Morton. (Bulletin No. 68, pp. 23, pls. 8.)

This bulletin records a series of experiments with range lambs to determine whether native hay can be profitably used in a ration with corn or other grains and whether home-grown products may be profitably substituted for corn when fed in connection with alfalfa.

O